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SPRING 1995

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the magazine of the Royal Ontario Museum

**NEW
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GALLERIES
OPEN AT
THE ROM**

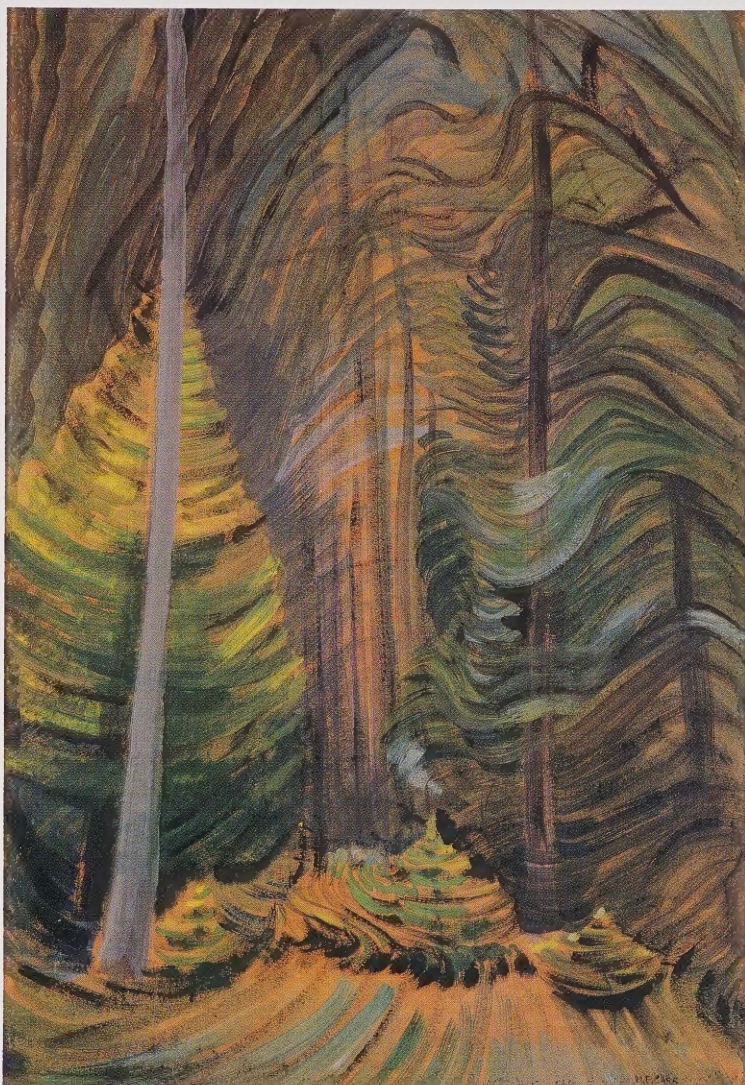
**SETTING THE
STAGE FOR
VAUDEVILLE**

**A WOVEN
TALE OF DEATH
IN ETHIOPIA**

**SALT: SAINT
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the magazine of the Royal Ontario Museum

Volume 27, Number 4, Spring 1995

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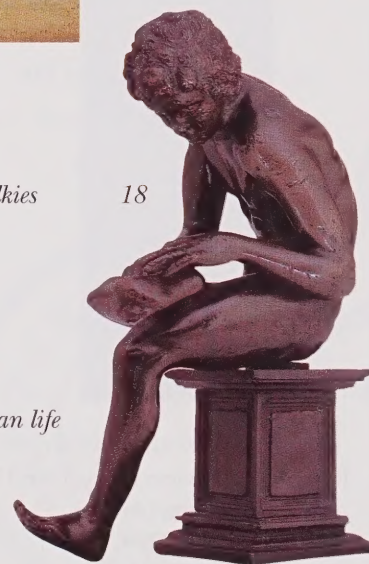
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*Enormous silk hangings in the collections of
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I've now journeyed several times through the past thousand years of European cultural life as revealed by the new south wing of the Royal Ontario Museum's Samuel European Galleries, and with each visit I've gained a greater appreciation of the diversity of the collections and what can be learned from them. The cover story of this issue is intended to give you a glimpse of the new galleries with their captivating displays of church and domestic objects, ranging from the humble to the most sublime, and I hope that it will entice you to make a first or a return visit.

Changing style is the predominant theme of the galleries, with style presented as an expression of the intellectual and moral attitudes of each period. What becomes apparent from the stories that unfold in the galleries—covering the Romanesque to the post-Victorian periods—is that even in the worst of times, positive and sustaining elements can be introduced into societies by cross-cultural, social, and economic exchanges.

The story of European culture, since at least the time of the Roman Empire, consists of continuing processes of invention and reinvention. Is there as certain a future for the preservation of biodiversity, an aspect of life that is infinitely older and more complex than an epoch of cultural history?

George Cook explains how ROM researchers are providing critical data for wildlife management and the understanding of genetics by more accurately determining the evolutionary history of animal species through DNA analysis. Their work is showing that animals with like physical characteristics may have different genetic structures, and therefore represent previously unidentified



species or subspecies. The accidental mixing of species in wildlife management can have dire consequences. Through research conducted by ROM scientists and their colleagues, more effective decisions may be made

and better plans devised.

The last two feature stories describe artifacts that represent short episodes in the histories of two very different cultures. A rare collection of vaudeville sets preserved from Toronto's Elgin and Winter Garden theatres is a valuable part of the Ontario Heritage Foundation. Vaudeville stage sets were executed with a high degree of artistry and ingenuity, but because they were large and not easily stored or restored, most sets were eventually destroyed. Camille Sobrian Finlay writes about the collection, four of the finest pieces of which are on view to the public in the Elgin and Winter Gardens Theatre Centre.

Michael Gervers presents a possible explanation of the apparent stories told on two huge Ethiopian silk hangings, one in the collection of the ROM, the other in the British Museum. They were most likely a set produced as a royal commission to commemorate the death of King Bakaffa and the events following his funeral. The pieces are anomalies in their subject matter, in their method of manufacture, and as parts of the museums' collections. In other words, they are fascinating.

With subjects ranging from chapters of the cultural history of Europe, Ethiopia, and North America to the preservation of biodiversity on this planet, I hope you enjoy reading this issue of *Rotunda*.

Sandra Shaul

SANDRA SHAUL

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*A cast of the reconstructed skull of the recently discovered **Afrovenator abakensis***

New Dinosaurs Home at the ROM

Several important specimens of Cretaceous dinosaurs have been added to the Royal Ontario Museum's world-renowned dinosaur collection. These exciting fossils provide significant new insights into the evolutionary history of dinosaurs and the distribution of the continents towards the end of the "Age of Reptiles."

A veritable graveyard of Early Cretaceous dinosaurs was discovered in Niger in November 1993 by an international expedition, organized by

Paul Sereno, a palaeontologist at the University of Chicago. I was invited by Sereno to join in the study of the fossils collected, which are currently being prepared at the ROM under the supervision of technician Ian Morrison. The most remarkable of the finds is a partial skeleton of a new large predatory dinosaur from a remote site called In Abaka. This formidable meat-eater has been named *Afrovenator abakensis* (African hunter from In Abaka). The snout of its 80-centimetre-long skull was

armed with large blade-like teeth with serrated cutting edges. Its powerful, three-fingered hands bore large sickle-shaped claws. A cast of the reconstructed skull is on display at the front of the Currelly Gallery of the Museum. The final repository of the original fossils will be decided by negotiation with the authorities in Niger, but at least high-quality casts of all bones will be kept at the ROM.

Afrovenator has proven to be most closely related to North American dinosaurs such as *Allosaurus* (two skele-

tions are on display in the Museum Dinosaur Gallery) from the Upper Jurassic Morrison Formation of the western United States. Similarly, a large broad-toothed sauropod from the same geological formation that held *Afrovenator* appears to bear a close resemblance to *Camarasaurus*, which like *Allosaurus* is found in the Morrison Formation of North America. These faunal similarities indicate that Africa was connected to the northern continents well into the Early Cretaceous period. Previously, experts had assumed that Africa had been disconnected from the other continents during the Late Jurassic and that dinosaurian assemblages showed a pronounced north-south division during the Cretaceous.

Another "new" addition to the ROM collections is a specimen that was collected from the Upper Cretaceous Horseshoe Canyon Formation in southern Alberta by a ROM expedition in 1923. Although the

fossil was already correctly identified as a small predatory dinosaur in the field, it languished in storage for several decades. Little bone was exposed, and some of the skeletal remains were weathered. During a review of our collections I noted the unusual shape of one of the neck vertebrae and had the two plaster jackets that contained the fossil retrieved from storage. During preparation of the smaller of the jackets I discovered an upper jaw with a sharp cutting edge and no trace of teeth, rather like that of a turtle.

Here finally was definitive evidence for the presence in North America of a very peculiar group of predatory dinosaurs, the Oviraptorosauria, otherwise known only from Central and East Asia. The animal in question, *Chirostenotes pergracilis*, was first described from a pair of detached hands in 1924. Subsequently, a toothless jaw was described as that of an otherwise unknown Cretaceous bird, *Caenagnathus collinsi*, in

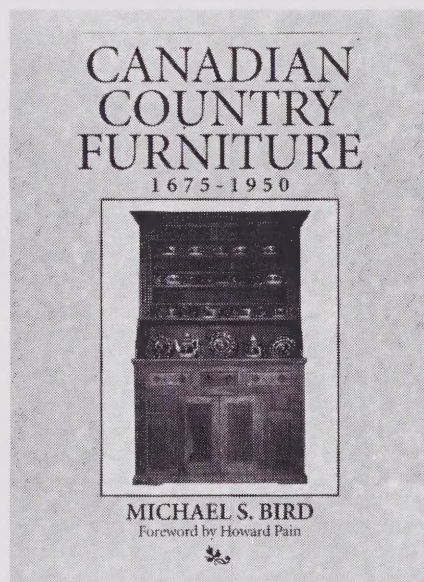
1940. More recently discovered, but fragmentary remains suggested that these two forms might represent the same species and were possibly related to the Asian oviraptors. However, the critical piece of evidence, toothless jaws in unquestionable association with other parts of the skeleton, was missing until the recent ROM identification.

The mode of life of the oviraptorosaurian dinosaurs remains something of a mystery. The first skeleton of *Oviraptor* was found buried over a nest of dinosaurian eggs in Late Cretaceous sandstones of the Gobi Desert of Mongolia in 1923. At that time, the eggs were identified as belonging to the horned dinosaur *Protoceratops*, skeletons of which are commonly found in those rocks. It was thought that *Oviraptor* had perished during a raid on the nest of *Protoceratops*, hence its generic name meaning "egg robber." A new find by a joint expedition from the American Museum of Natural History and the Mongolian Academy of Sciences has challenged that interpretation. One of the so-called *Protoceratops* eggs actually contained an exquisitely preserved skeleton of a tiny *Oviraptor*. The alleged egg robber was apparently tending its own nest.

The third addition to the collection is an adult skeleton of the duck-billed dinosaur *Maiasaura peeblesorum* from the Upper Cretaceous Two Medicine Formation of north-western Montana. *Maiasaura* is the first dinosaur for which parental care has been conclusively established; hence its generic name meaning "good mother lizard." The new skeleton includes extensive skin impressions and a mould of the horny beak that covered the front of the snout in life. Bones of a juvenile were found in association with the adult skeleton. Preparation of this remarkable skeleton will begin this year.

HANS-DIETER SUES

Hans-Dieter Sues is associate curator in charge of the Vertebrate Palaeontology Department, Royal Ontario Museum



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Salt: Saint or Sinner?

NO DOUBT ABOUT IT, NOWADAYS salt creates conflict. On one hand it's blamed for conditions as diverse as hypertension and osteoporosis; on the other, our desire for salt is said, by one American researcher at least, to be as basic as our urge for sex.

Sodium is certainly essential to life. It fosters the proper fluid balance within body cells and regulates muscle and nerve sensitivity. And it's helpful in other, stranger, ways. In Poland and Romania, for instance, sufferers from severe respiratory ailments take "holidays" underground in salt mines to alleviate symptoms.

On the negative side, excessive sodium intake may be a factor in producing high blood pressure—and it certainly contributes to keeping it there once a person is di-

agnosed with the problem—although any absolute cause-and-effect relationship is very far from being proved. As for osteoporosis, the *British Medical Journal* reported a study in which a number of elderly women lost nearly 30 per cent more calcium on a high salt diet compared to a low salt regimen. Depending on whom you believe, a safe amount for most people is said to range from 1.1 to 3.3 grams a day. One teaspoon of table salt or two tablespoons of soy sauce contain about 2 grams of sodium.

What are lovers of potato chips and dill pickles to do? Cut down on foods like these is the usual advice. Most of the sodium in an average North American diet (estimates swing from 50 to almost 80 per cent) comes from processed foods,

everything from canned soup and instant pudding to steak sauce and bacon. The rest comes from salt added in the kitchen and at the table, plus the small amount occurring naturally in certain foods.

Where raw or roasted meats are customarily eaten, the body's requirements may well be met from this source alone. Diets based entirely on cereals and vegetables require additional sodium. Yet as with many things in life, more is not preferable to just enough. We may have turned a natural craving into a hazardous excess.

This is not true of all societies, or all individuals for that matter. When Europeans first arrived in North America they found many inhabitants unfamiliar with salt; when introduced to it, they tended to de-

scribe its taste as sour. Malays, on the other hand, value saltiness and characterize it with a variety of similes—like seawater, like soy sauce—possibly because children are taught to cook by adding ingredients until a particular savour is achieved.

Salt is distributed widely throughout the world: in the sea; in underground deposits (rock salt); and in salt springs. Ground deposits may have come from the drying up of ancient oceans. Yet the sea gets its salt as weathering and erosion release minerals that wash into the water. Many of these—iron, magnesium, potassium, calcium carbonate—readily involve themselves in chemical reactions that yield new sedimentary rocks. Sodium, however, along with chlorine, builds up as a residue, creating salinity. A cycle seems to be operating, though its exact pattern remains mysterious. (Another puzzle still to be solved is why oceans do not eventually become completely saturated solutions.)

For thousands of years, before refrigeration, salt was particularly valued as a preservative for meats, fish, vegetables, and even fruits. (Think of Moroccan preserved lemons.) By drawing water from bacteria and mould cells, brining caused them to dry up and die, or at least to slow their action drastically. Then when it came time to eat, the excess salt was soaked away and diets that would otherwise have been fearsomely monotonous gained a measure of variety. Now the practice of salting continues more from tradition and flavour preference than from need.

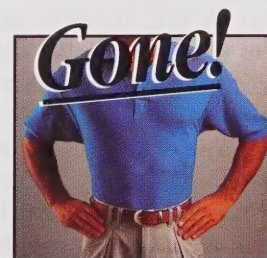
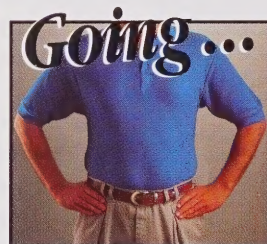
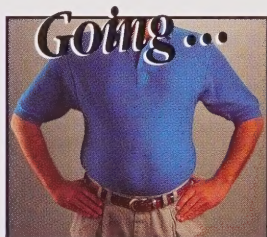
In domestic use today sodium chloride, our common table salt, generally appears in finely ground form with iodine, as well as other additives which prevent clogging. Then there are larger crystals, of which the purer—what the French term *gross sel*—may be ground for the table, while the less pure are used in pickling. Sea salt, either coarse or fine, may be purified to whiteness or left with algae and other mineral compo-

nents, resulting in greyish-brown sandlike grains. Another form, less familiar, is made at Maldon on England's east coast and results in light, crisp, snowy flakes usually set out in salt cellars to be crumbled with the fingers. Salt aficionados can have serious set-tos about the merits of their favourite kind.

Rock salt has been mined since prehistoric times (Celts were working the Austrian Alps at Hallstatt in the 10th century BC) or it can be flushed to the surface with water which is then evaporated. Sometimes deposits are found by accident. In 1866, Samuel Plait was drilling for oil near Goderich, Ontario, and found a thick bed of salt instead. (Now the presence of salt has become a marker of sorts for those searching for oil.)

Sea salt is obtained naturally in warm dry climates that allow for solar evaporation, or it can be boiled off in the same way as that from inland salt springs.

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in the late 1800s can be seen at the Salt Museum on the shore of Lake Onondaga in Syracuse, New York. The work of a salt boiler was no joy. Mostly Irish immigrants, they toiled in 32°C (90°F) heat and immense humidity for 12 hours a day, seven days a week. They had holidays on the 4th of July, Thanksgiving, and Christmas—or when they were too sick or too badly injured to work. Labouring over a double range of enormous iron kettles known as a boiling block, they were in constant danger from splashes of scalding brine, or indeed of death if they slipped into one of the 100-gallon kettles. As the water evaporated, the salt was scooped into baskets to drain, then shovelled into bins alongside the block for a final drying.

At Lake Onondaga solar evaporation was also used, a much cheaper process because no fuel was needed. From April until November, brine evaporated from giant tanks. Workers and their families were on constant call to cover the vats when storms threatened, to prevent dilution. The brine was delivered from saline springs through wooden pipes which, unlike metal, didn't corrode. Should a pipe develop a leak, escaping salt would soon crystallize and seal the break so the pipes were virtually indestructible.

Despite salt's general prevalence, some of the Earth's regions were left without their fair share, which has made the trade in salt a vigorous enterprise throughout human history. The *Via Salaria* leading inland from the salt pans at Ostia is one of the oldest roads in Italy. The Roman army received an allowance of salt, the *salarium* which in imperial times became instead a sum of money to buy salt, and left us with our term for salary. India and China both have vast deposits. Marco Polo recorded the use of salt for currency in Tibet and it still plays this role in parts of Africa today.

Salt surely owes much of its position in mythology and religion to its ability to protect from corruption. In early Roman and Hebrew societies, animal sacrifices were purified

with salt to make them acceptable to God. A handful of salt may be thrown into the household fire to drive away demons who might otherwise be attracted to it, and salt also figures in the exorcism rituals of most religions.

Spilled salt, however, is considered unlucky and was indeed used both symbolically and practically by Romans and Hebrews who often spread it on conquered territory to make the ground sterile. And who, tipping over the salt shaker at dinner, hasn't hastily thrown the required three pinches over the left shoulder to avert catastrophe, thus pointing up salt's obverse side: the protector turned destroyer.

Which brings us back to the fact that too much of this critical mineral is definitely not preferable to just enough, an apt caution for the recipe that follows.

Salt-grilled Steak

Despite the name, this technique works beautifully for veal or lamb

chops and skinless boned chicken or duck breasts as well as beef.

Season your chosen meat: a marinade of herbs, garlic, and olive oil is one good possibility, a brush of flavoured Dijon mustard is another, but no extra salt. Let stand, covered, for an hour or so at cool room temperature, or for longer in the refrigerator.

Line the depressions of a ridged cast-iron grill pan intended for stove-top use with a thin layer of coarse salt, making sure this doesn't reach the top of the ridges. (Note: ordinary table salt will not work.)

Heat the grill pan, drain the meat if necessary, and broil, turning once, until it's done to your liking.

The salt helps prevent spatters and smoke while imparting a deliciously elusive savour. (Just make sure before serving that you brush off any salt grains that may have stuck to the meat.)

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ECHOES OF TORONTO'S THEATRICAL PAST

A rare collection of vaudeville sets conjures up life before the talkies

CAMILLE SOBRIAN FINLAY



PHOTOGRAPHY COURTESY ONTARIO HERITAGE FOUNDATION

DELICATE BUTTERFLIES PAINTED ON GOSAMER satin sprinkled with diamond dust, and subtle peacocks, urns, and roses surrounding a fantasy castle on a magical lake—these are but a small sample of the sets belonging to what is probably the largest collection of vaudeville scenery in the world. Far removed from the glory and excitement of their show-business past, most of the sets are carefully and securely stored in a warehouse in Scarborough, Ontario. Four of 24

**This dark
fancy interior
backdrop would
have been
used for a court
drama or a
short scene in
an office.**

large sets are on public display.

Part of the property of the Elgin and Winter Garden theatres, two national historic sites operated by the Ontario Heritage Foundation, the collection as a whole reflects the changing styles of vaudeville scenery over a 17-year period, from 1913 to 1930 when vaudeville ended at the Elgin. Many of the pieces, delicately hand-painted by New York scene painters, were produced for the opening of the Elgin

Camille Sobrian Finlay is a freelance writer living in Halifax, Nova Scotia

Theatre in 1913. They were painted in soft, blended colours and the subjects included landscapes and realistic renditions of palaces, conservatories, and castles. In contrast, by the 1920s, under the influence of Art Déco, design became more geometric and colours more flamboyant.

The stacked Elgin and Winter Garden theatres (the former was originally the Yonge Street Theatre) were part of the Loew's chain of vaudeville, which stretched across North America. For a mere 10 to 50 cents, families could attend the Yonge Street Theatre from early morning to late

The original Elgin/Winter Garden building now has an addition with three cascading

such as Milton Berle and the team of George Burns and Gracie Allen presented their acts on the Elgin stage and then ran up the stairs to the Winter Garden to present them again.

Each show had regular scenic requirements, which included streetscapes, landscapes, a neutral drape, the olio curtain, the palace, conservatory, garden, and wood drops, and a kitchen. Each set had its purpose, whether for comedy or tragedy, musicals or slapstick. Dark interior scenes were for melodramas and were used a great deal. Light, fancy colours, particularly blue, were



evening for shows of song and dance, music, comedy, and magic, and eventually silent films. Performances at the Winter Garden, the more prestigious venue, ran only on evenings and weekends, and were intended for the "swells" who could afford more expensive tickets.

In order to run the same shows at slightly staggered times, both theatres had identical sets of scenery, which were customized to the different stage sizes. Entertainers such as Edgar Bergen and his wooden sidekick, Charlie McCarthy, and comedians

lounges. Each level of the new addition was designed to display scenery flats.

used for comedies. Plain settings could be used for kitchen or prison scenes.

Sets for vaudeville were the last to be painted with such detail and artistry. According to Professor Lance Brockman, a scenic design historian and scene painter at the University of Minnesota:

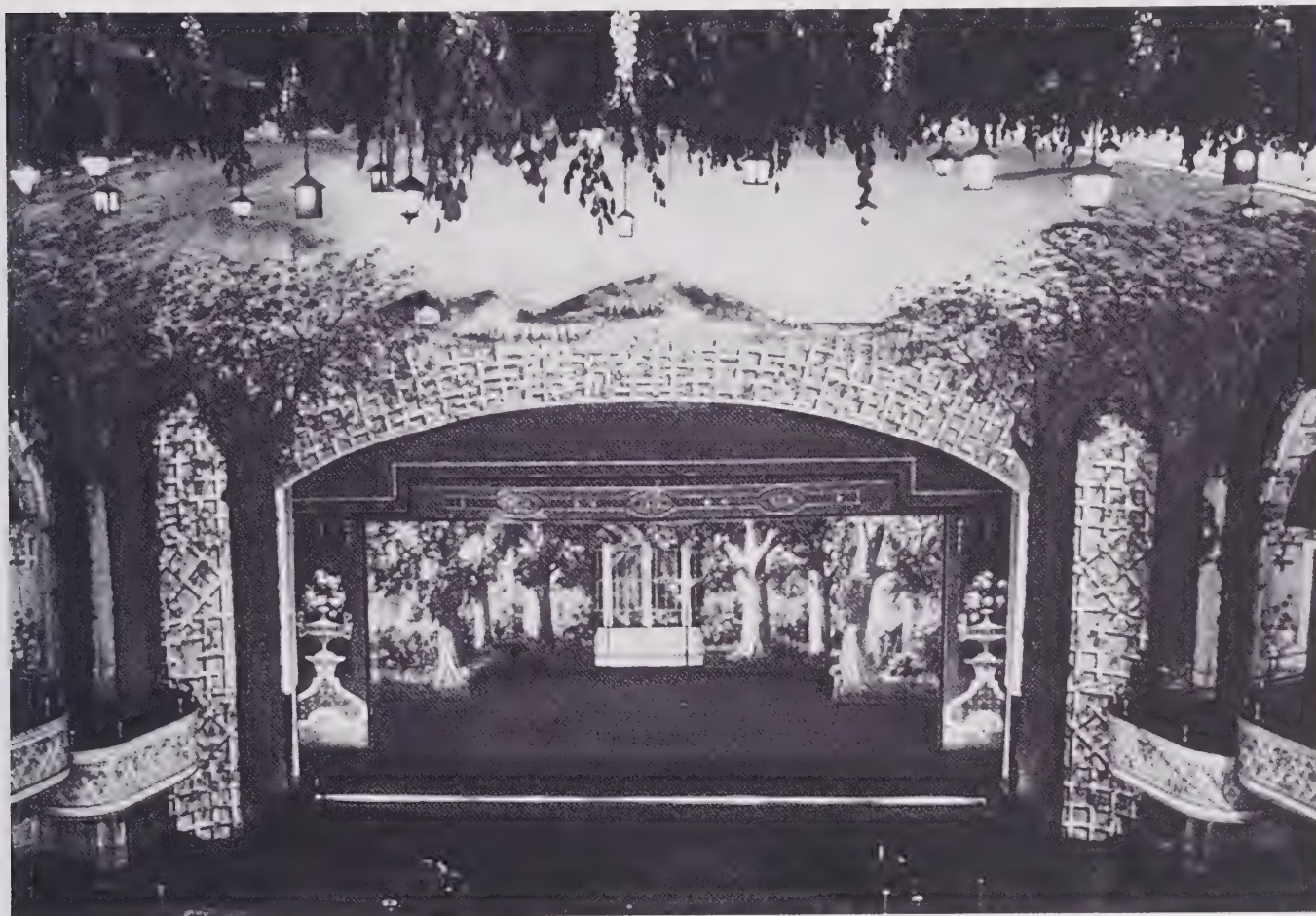
At first glance the scenery would seem easy to duplicate; however, my experience indicates that this is a very erroneous assumption. The large areas or blocks of even colour are difficult to achieve. . . . In addition, some of the brush work, particularly in the flowers and foliage, shows a

certain economy which can only be produced with tremendous experience and artistry. The vases of flowers and exotic peacocks found on the tormentors, olio fragment and conservatory wings would require tremendous practice and experimentation with the brush to reproduce with the original freshness and clarity.

Elaborate stage scenery was part of the fairy-tale atmosphere created for both the Elgin and Winter Garden and it performed a practical function. In Hilary Russell's book *Double Take: The Story of the Elgin and Winter Garden Theatres* she explains that stock scenery provided appropriate back-

In 1981 the Winter Garden was visited for the first time in decades. Mounted on the

son acts or song-and-dance routines to be performed or a silent film to be shown at the front of the stage, while stage-hands were busy setting up another part of the stage. Professor Brockman created a miniature reproduction 12.5 centimetres by 50 centimetres (5 by 20 inches) of the second olio produced in 1925 for the Winter Garden, as the original had been vandalized. Also in the collection of the Ontario Heritage Foundation, the curtain displays a fantastic scene of exotic peacocks and richly coloured golden urns brimming with roses and an azure sky



grounds for the acts, as well as a means of cropping the stage opening as a way to hide waiting performers and working stagehands from the view of the audience. A few of the flats had small "perforations" made by waiting performers so that they could peep at the audience to assess its "size and receptivity."

The olio curtain was the all-purpose scenic drop. It hung with streetscapes and any advertising drops or flats painted as movie screens just behind the first entrance to the stage. This allowed one-per-

stage were the wood wings, garden wings, and border stage scenery, which created the impression of an English garden.

over a distant shimmering white castle situated by a bright, blue lake. A gold border frames the whole scene.

Unlike other types of scenic drops, such as the wood, conservatory, or garden, which followed generic vaudeville requirements, the scene on each olio varied from theatre to theatre. According to Brockman the surviving fragment of the original olio is "perhaps the nicest of the collection. When you compare the peacock flats against this olio fragment, it is evident that the painting on the olio is more subtle and

from a more experienced hand.” He believes that the difference in painting style means that palace wings were added to the theatre at a later date but were painted to accompany the original olio.

His theory has been proven by the gradual unmasking of earlier painting under the set of palace wings, borders, and fancy backing drop. These pieces are displayed as a single unit with the satin act curtain and garden drop in the new cascading lounges of the Elgin and Winter Garden Theatre Centre. Brockman also noted overpainting on other pieces in the collection and, given

Because of the light sensitivity of the fabric and the diamond dust painted on the arabesque

painters vied to paint on satin because of the effects that could be achieved with its finish. On the other hand, because of the difficulty of painting on satin, the artists “only got one chance” because changes could not be made. To prevent colours from weeping through the fabric, gum arabic was used to bind the pigments. The transparent gum allowed the fabric to keep its shimmer.

During the early 20th century, gas stage lighting with white, red, or blue reflectors was used in theatres. With so rudimentary a system, special effects had to be painted



that this was not a traditional practice, he assumed it was a cost-saving measure.

Another curtain used for soloists was the satin act drop. Cloth drops or act curtains became popular after the turn of the century and would have been used to showcase performers such as escape-artist Harry Houdini, who became a star in vaudeville as the “Handcuff King and Escape Artist.”

In the early part of the century such drops were made of velour, but during the teens shimmery or shiny fabrics became fashionable. According to Brockman, scene

of the satin act drop, the mood projected by the drop could be altered by changing the footlights.

directly onto the scenery. Later, more complex lighting systems, which included spots that could follow an entertainer across the stage, were used for the effects.

The satin act drop had “diamond dust” applied under the paint to make it sparkle. Made from granulated glass or derivatives of gelatin, the dust was an old theatre technique that predated glitter. Fancier drops were hung upstage behind the second, third, and fourth entrances, and many had accompanying wings. To help give the appearance of maximum variety and diversity

of acts, some pieces of scenery were designed to be interchanged.

For example, at the Elgin and Winter Garden the fancy backing drop could be used with the palace wings and borders or with the olio. The back dropping was textured with sponge paint in vibrant rose-violet, and along its base there is a series of arabesques with bright blue leaves and dark violet stems. Gilt or bronzing powder has been used to outline the intertwining leaves, branches, and roses in the arabesque. The sponging texture is carried over into the palace wings, which have two oriental-style

The garden drop displays generic scenery that originated with Italian Renaissance

appropriately exotic sense of colour and design.

Magazine illustrations were very popular in the early 1900s, and in the absence of copyright laws, scene painters could collect "morgue books," big scrapbooks of illustrations by such noted artists as Maxfield Parrish, which they freely copied.

Most of the Elgin and Winter Garden scenery is stamped "Marcus Loew's Studio, Albert Howard, Scenic Artist." Russell's research revealed that Howard joined the studio in 1912, and with a staff of 75 men and women "went up and down the circuit dressing up theatres and stages as new



fans. Gilt also highlights the ends of the ornate tail plumage of two peacocks.

Theatre chains such as Loew's employed teams of highly specialized artists who were trained in the academies of Europe. Russell describes the system:

Organized into studios, scene painters were categorized as "specialty" or "utility," the former being responsible for more imaginative or intricate work. A specialty artist might be further classified according to expertise, such as flora and fauna, or architectural features. Chinese artists were in demand, as they were considered to possess an ap-

painting. Floradora was the best known musical performed before this scenery.

houses were acquired or built."

After having been painted in New York, the Elgin and Winter Garden scenery flats, rolled on long barrels of basswood, were shipped by train to Toronto. Touch-up artists accompanied the shipment. Opera and vaudeville houses were often erected close to a railroad spur to ease the loading and unloading of shipments and for the convenience of the touring performers. Flats were a standard width of five feet, nine inches (1.75 metres, which enabled them to fit through the box-car doors.

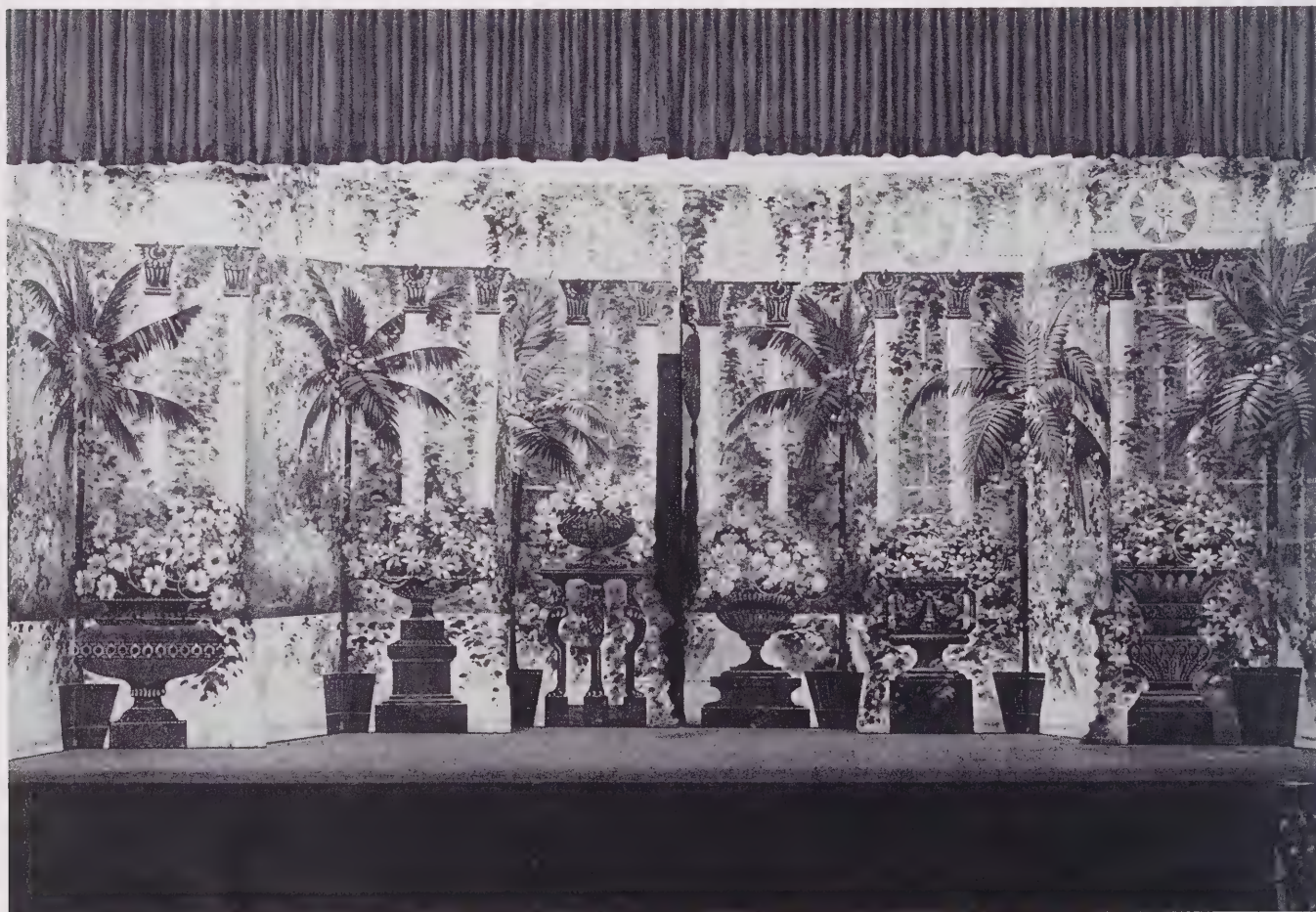
Asbestos fire curtains were painted at the theatres. They came into general use after a number of serious fires caused by the gas lighting, in particular the infamous blaze at Chicago's Iroquois Theater. Scene painter Thomas G. Moses describes in his diary the problems he experienced painting an asbestos curtain that had been improperly shipped from the supplier. The curtain had been folded instead of rolled. Asbestos fibres are very rigid and so the wrinkles produced by folding would never fall out.

Fire curtains, sometimes with the words "asbestos" or "safety curtain" prominently

The conservatory wings are a throwback to turn-of-the-century stock scenery. Some-

roof garden wore off. In 1928 the doors of the Winter Garden were closed. Although the Elgin continued to operate as a movie house, the sweeping seven-storey marble staircase leading to the Winter Garden was boarded up and forgotten for the next 60 years. Except for the removal of its seats, the Winter Garden was left untouched in darkness. The constant temperature and darkness preserved the theatre's elaborate decoration. To save the theatres from the wrecker's ball, the Ontario Heritage Foundation purchased the property in 1981.

Because of the costs and difficulties of



painted onto them, were lowered at intermission to reassure the audience. Every city established its own fire code and the restrictions and laws are still on the books. The Winter Garden's curtain has been restored and hangs in the theatre today, fulfilling its original purpose. Vinyl sealer was sprayed on the back of the curtain to prevent health hazards from loose asbestos fibres.

Talking pictures and their movie palaces brought about the demise of vaudeville. After 14 years of nightly entertainment, the novelties of vaudeville and a

times they were combined with a backdrop portraying the back glass wall of a Victorian conservatory.

restoration and display, very few theatre museums preserve actual scenery flats. Flats were painted to be used as much as possible over a short period of time, after which they were replaced by new styles. The Ontario Heritage Foundation has restored some of the more valuable pieces of the vaudeville-set collection, which visitors may see first-hand either by touring or by attending performances at the theatres. The collection not only represents a valuable part of Ontario's heritage but also the theatre heritage of North America. ♡

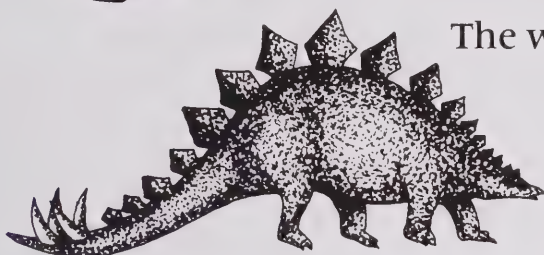
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WALKING THROUGH A THOUSAND YEARS OF European life in the new south wing of the ROM's Samuel European Galleries, you are left with the distinct impression that when the world did not end with the passing of the first millennium nor in the days that followed, there was a collective sigh of relief that triggered the start of a new era. During the centuries that ensued there were bursts of great creativity and an unquenchable thirst for discovery, as well as cultural, scientific, political, social, and economic advances and upheavals that have led to the world as it is today.

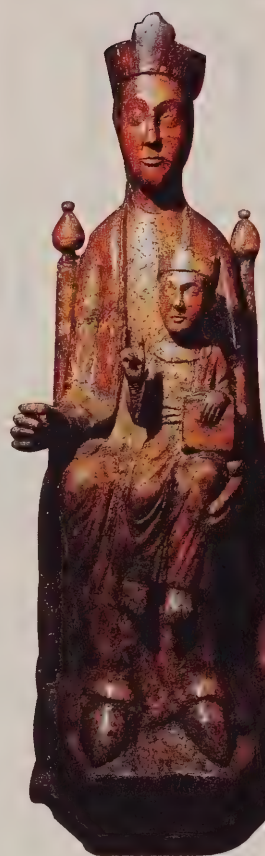
The new galleries, which comprise 930 square metres (10,000 square feet)—an intimate space by museum standards—could not possibly present all aspects of the European world from the end of the Middle Ages to the present. However, through the display of period vignettes and room settings using the broad range of objects in the ROM's European collections, text panels that set the social context and explain style and technology, and audio presentations that talk about specific issues, a broad picture is painted with a sprinkling of details that provide insights and provoke further thought.

Changing styles through the centuries is the predominant theme of the galleries. Style is presented as an expression of the intellectual and moral attitudes of each period, and both the objects and the technology used to produce them are shown in this context. How the thoughts, attitudes, and their associated styles evolve is fascinating, for with the wisdom of hindsight visitors can see similarities to the present world, and for better or worse realize that *plus ça change, plus c'est la même chose*.

As the contemporary world is showing once again, in places such as Eastern Europe and many parts of Africa, societies, like individuals, need strong foundations. When the existing ones falter antisocial behaviour, even chaos, emerges until new or modified infrastructures are created.

With the fall of the highly structured Western Roman Empire in the 400s, Europe sank into the period that is known as the Dark Ages. Apocalyptic thinking predicted the end of the world with the close of the first millennium. However, while the Middle Ages, which span the years from the downfall of the Western Empire to the Renaissance, began bleakly, they finished on the high note of the Gothic.

Throughout this time, new political alliances and states emerged, and exploration brought Europeans to the Orient, which led to new trade and economic diversity and growth. When the world did not end as expected, the Church emerged as the greatest power of all, providing the focus for the social order and community that



In this Romanesque sculpture of the Virgin and Child, carved in Barcelona, Spain, in the 1100s, the figures are executed as symbols rather than natural forms. As such they served as a visual language that was easily understood by worshippers.

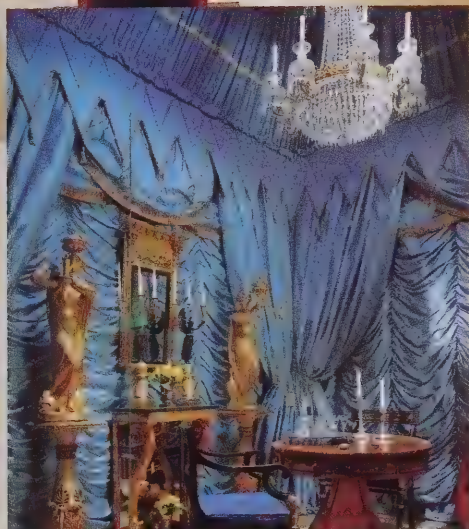
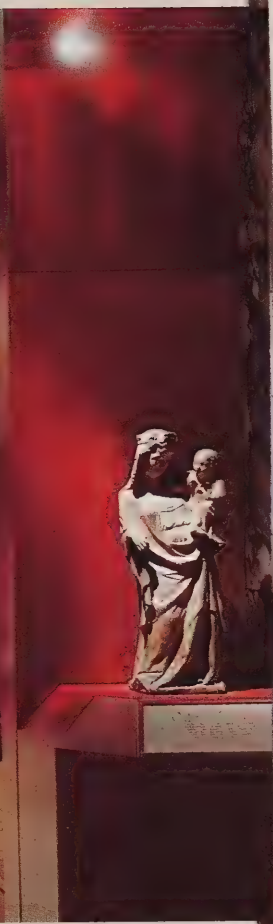


The entrance to the south wing of the Samuel European Galleries welcomes visitors to the start of the journey through 1000 years of European cultural history. The Romanesque and Gothic art and artifacts on view were created in the 11th to 13th centuries. At this time new social and political orders were being established in Europe, which was emerging from the Dark Ages.

*New ROM galleries
present an overview
of 1000 years
of European life*

THE NEW SOUTH WING OF THE SAMUEL EUROPEAN GALLERIES

SANDRA SHAUL



Throughout the periods of history represented in the galleries, there were times when classical style is a major influence. In the English Regency tent room, 1810-1830, (left), classical motifs are used for the candelabra and other furnishings.

The Charles Rennie Mackintosh chair, 1898-1928 (above), is a fine example of 20th-century design. The startling stylistic resemblance between the chair and the Virgin and Child (facing page, upper left), reveals a common approach to the creation of simple functional objects.

had been lost with the Empire (as well as a good excuse for the Crusades).

Between approximately 1000 and 1200, the Romanesque style was born and flourished in a great number of churches and cathedrals built all over Europe. Like the buildings of Imperial Rome, the churches are imposing in scale, evoking a sense of power transcending that of any individual state, and for the first time since the decline of Rome, they included such features as large-scale sculpture.

Although the form of the architecture makes classical reference, the sculptural figures are not rendered as idealized natural beings, but are instead simple, almost featureless, icons. Each church was a centre that provided primarily a visual record of the life of Christ and a depiction of other Biblical references, especially the Last Judgement, for the largely illiterate community that it served. The main concerns were for spirituality in place of earthly materialism, and the replacement of the classical infrastructure of Rome with that of Christianity.

However, as the Dark Ages receded, humanistic and naturalistic influences reappeared. Theologians began to view Christ as God's physical investment on Earth and the natural universe as a mirror or symbol of the divine creative force that brought it into being. Cathedrals were built on an even larger and grander scale, with a flamboyant style that gives them an ethereal lightness. Interior decoration became important, which made it possible to use and explore new media such as wood and alabaster.

Most artistic activities were associated with the Church; however, one of the more interesting artistic innovations in secular society came about through the introduction of ceramics that were produced by mould rather than wheel and given lustrous tin glazes. The techniques were developed in Baghdad in the 800s and travelled west via North Africa until they crossed the Mediterranean into Spain. Hispano-Moresque pottery was traded throughout Europe, and in Italy it inspired the creation of an indigenous version known as majolica. The new pottery was also decorative. Earthenware and stoneware pottery was, for the most part, utilitarian.

Outside the Church, society as a whole lived very simply and pragmatically, as the audio presentation of life in a late-14th-century French town explains. Marriages were arranged for women as soon as they were able to have children, and although love could grow in such relationships, what was most important for the liaison was children and the ability of the man to support his family. As today, prices and weights in the markets were regulated. Homes were furnished simply

Style is presented as an expression of the intellectual and moral attitudes of each period, and both the objects and the technology used to produce them are shown in this context

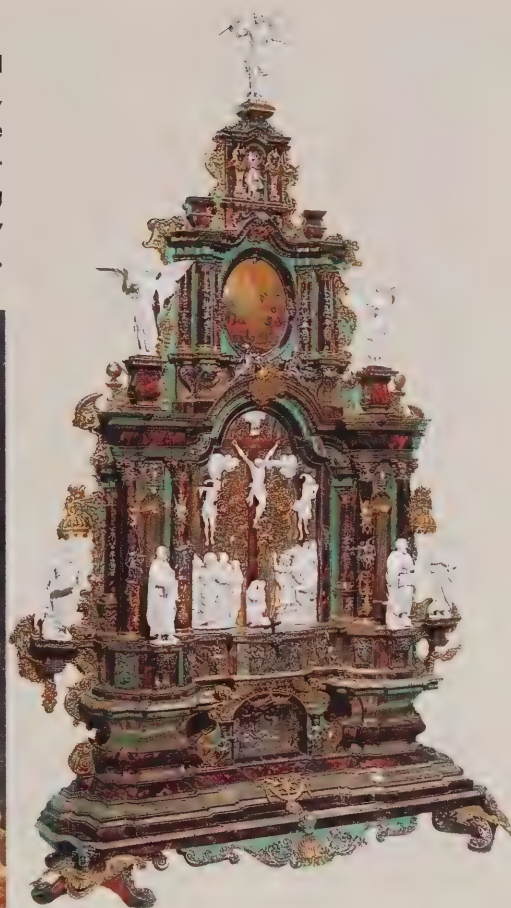
By the 13th century, theologians began to view the natural universe as a symbol of the divine creative force that brought it into being. Consequently art of this period portrays human figures more naturally than that of the preceding, Romanesque period. This is evident in this 12th century French Gothic sculpture of the Virgin and Child.



Baroque art was meant to overwhelm. The extremely ornate and superbly crafted home altar (right), produced in Augsburg, Germany, c.1716, is a miniature version of a church altar, complete with painted medallion and carved ivory figures on a body composed of precious tortoiseshell, ebony, and silver. While bringing the glory of God and Church into his home with this extraordinary object, the owner was expressing a hefty dose of personal glory.



The Elizabethan bedroom, dating from the 16th century, shows the high level of artistry reached by furniture and cabinet makers of the period. The wealthy nobility and growing merchant class of Renaissance England garnered prestige through ownership of many highly decorated, beautiful furnishings, some imported—more than would meet their basic needs. The sumptuous drapery for the bed was not only a means for providing warmth, it was also a sign of wealth.



A late 15th-century Hispano-Moresque ceramic basin (below), produced in Spain, shows the influence of Arabic techniques on European ceramics.



with the basics—a bed, storage chests, a table, and benches. The only touches of colour were found in stained-glass windows and in textile hangings used for insulation.

In Italy, the dawning of the 15th century marked a rebirth of intellectualism that gradually spread throughout the European continent. In part inspired by the rediscovery of the great classical texts, and made possible by the establishment of strong political states and growing Church and secular patronage, the Renaissance was a period of astounding artistic achievement, scientific discovery and invention, global exploration, and religious and spiritual questioning and upheaval. The Renaissance established the foundation for all aspects of the modern Western world—its politics, economic and social structures, spiritual beliefs and religious institutions, and arts.

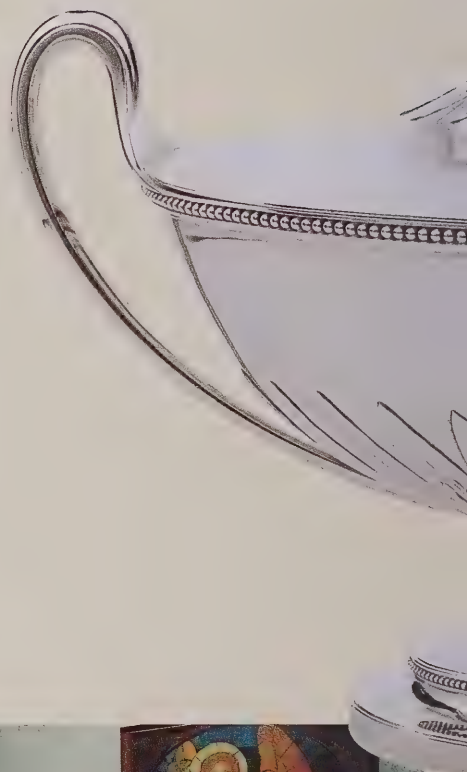
Many of these trends and discoveries are represented in household possessions shown in the galleries. For example, there are exquisitely engraved nautilus shells, which were prized for their value as natural exotica from voyages of scientific exploration, in holders that are wonders of contemporary craftsmanship in the finesse of the engraving and the design of the silver. Decoration on furnishings often has a classical theme. Not only did homes contain more furnishings than before, but as the English bedroom display shows, some pieces were of foreign manufacture. With growing trade came the prestige of owning objects from a variety of sources.

By the baroque period, in the 1600s, Oriental objects, especially porcelains, were collected and highly prized, and their popularity would eventually lead to the establishment of a European porcelain industry. The pursuit of material possessions naturally brought about greater and more diverse consumer demand and a blossoming of new trades. However, materialism always finds its ultimate expression in the status symbol. In this respect, nothing has changed in western society for the past 600 years. As visitors wander through the galleries, from the Renaissance displays to the baroque, rococo, and neoclassical, it is fascinating to discover why certain items were status symbols.

Although it may be difficult to imagine today, for more than 300 years lighting was a status symbol. Without proper lighting, there was very little that one could do at home after dark besides going to bed, and until the middle of the 20th century lighting was carefully budgetted. The earliest domestic lighting was provided by candles; as technology progressed, these were replaced by kerosene lamps, then gaslights, and finally electric light. As a rather curious transition piece, a wall fixture in the Victorian parlour display consists of one electric bulb with a gaslight above it.

The pursuit of material possessions naturally brought about greater and more diverse consumer demand and a blossoming of new trades

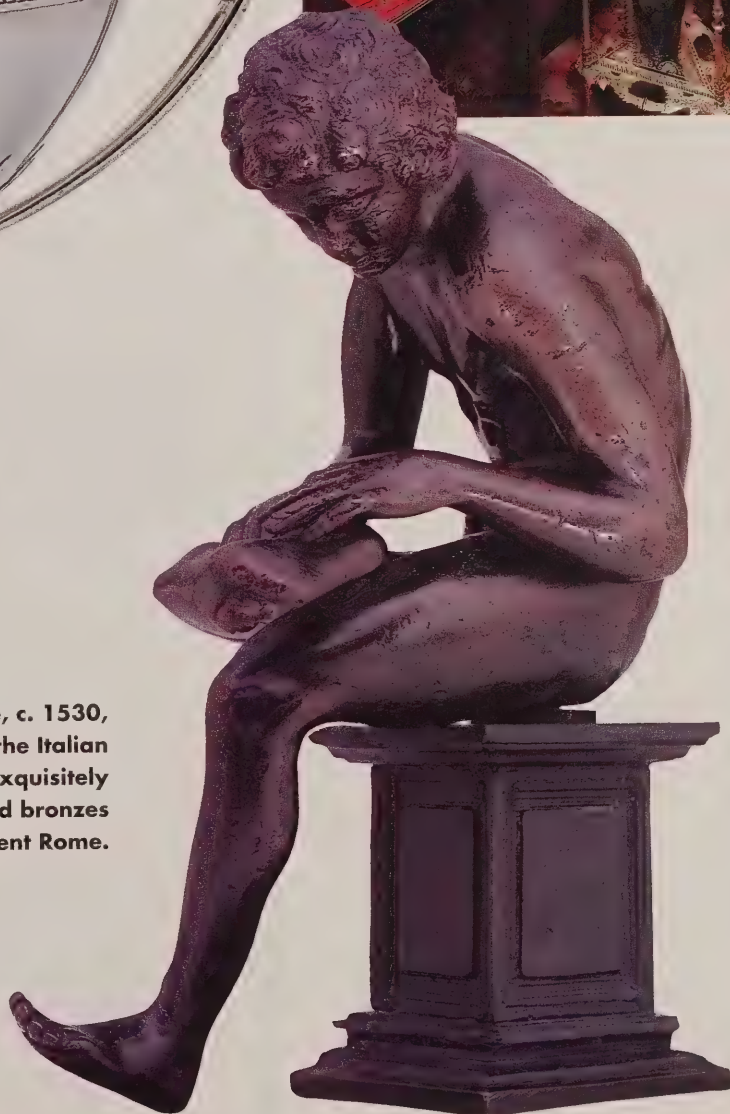
Victorian England, like other countries that experienced the Industrial Revolution, seems to have been divided between two camps: one that saw every new machine-manufactured object or invention as a great advance and another that advocated a return to the styles of apparently simpler and purer times. The first finds expression in the detail of a Victorian parlour on the facing page, the latter in such trends as the Gothic revival and the handcrafting of everything from furniture to wallpaper as is shown in the room illustrated below.



The neoclassical design of an English soup tureen, 1785, is expressed in the classically inspired clean, simple lines and motif. Such design was a reaction to the highly ornate rococo style.



A Spinario statuette, c. 1530, from Ravenna, shows the Italian Renaissance taste for exquisitely modelled and finished bronzes inspired by the art of ancient Rome.



An associated sign of wealth and status was a dining room—accommodation that most British homes did not have until 1760—as it indicated that the owner could afford lights. As one views the room setting of an English neoclassical dining room with its exquisite furniture and table service, it is apparent that intimate dining represented a new level of elegance, sophistication, and wealth.

There are others ways in which prestige has been and continues to be measured. For example, handcrafted objects are generally considered of more value than similar objects produced by machine, and certain materials may be more fashionable than others by virtue of their novelty rather than their rarity. In 18th-century England, painted plaster walls were considered more prestigious than stained wood panelling because the paint cost more (a sign of wealth), and there was broader scope for individual taste (or lack thereof). Ironically, at the same time that a new technique was seen as more prestigious, the décor of the rooms harked back to classical style.

Victorian England, like other countries experiencing the Industrial Revolution, seems to have been divided between two camps: one that saw every new machine-manufactured object or invention as a great advance and the other that advocated a return to the styles of apparently simpler and purer times; the latter found expression in such trends as the Gothic revival and the handcrafting of everything from furniture to wallpaper. After 1890, however, most designers and consumers, regardless of their sympathies, were searching for new styles that were unique to the Industrial Age.

This pursuit of material expression for the “new” is charmingly displayed and summarized with the last object exhibited, which faces the Romanesque display at the entrance to the new Samuel European Galleries. It is an elegant black-stained oak chair created just before the turn of the century by Charles Rennie Mackintosh, whose work has influenced much 20th-century design. The simple rigid, vertical lines of the chair are meant to present it as an efficient, primarily functional object, a veritable icon of seating that would appeal and be available to all. Its oak is stained rather than painted so as not to hide the natural beauty. While the simple and purely functional design of the chair is a modern statement, it does not look like an extreme departure from the Romanesque.

Another theme that emerges from the galleries through the displays and the audio programs is the intriguing relationship between behaviour, attitudes, and economics. For example, in the room portraying a typical English salon of 1750, a punch bowl set is prominently displayed. Punch, a drink brought to England from India,

Until about 1760, most British homes did not have dining rooms (below). Dining after dark required artificial lighting, which meant that the homeowner had to be sufficiently wealthy to afford candles and elaborate chandeliers and candelabras. He could also display his wealth with beautiful table settings and furniture.



A room decorated in French Régence style, c. 1730 (right), features two armchairs and a settee that were designed more as architectural elements than for seating. These are exceptional pieces because they are still covered with the original upholstery. The needlework is heavy and rich, which suggests that it was used as winter upholstery. It is in the style of the École Saint-Cyr (1715-1730), a school established for the daughters of impoverished nobility.





A view of the galleries shows a late baroque room setting to the left, the far end of the French Régence-style room with its wonderful bracket clock to the right, and the English dressing room at the far end.



Materialism always finds its ultimate expression in the status symbol. In this respect, nothing has changed in western society for the past 600 years

A salon of a Paris townhouse, c. 1750-1760 (below), is shown in detail down to the plate of oysters. At this time, the French upper classes favoured city living.



was most popular until the mid 19th century when it was deemed to cause unacceptable behaviour in those who imbibed.

Tea was first imported by the Dutch, and later by the English as the “China drink” of the nobility. By the mid 1700s, it had become a dietary staple for all classes because it was cheaply and readily accessible as contraband, much as illegally smuggled cigarettes are today in Canada. However, because it was consumed with lots of sugar, a taste which kept the slave-driven West Indian plantations in operation, tea became associated with slavery, and by the late 1700s it was as “politically incorrect” as unrecycled-paper products are today.

Just as today’s market demand has put considerable stress on forest resources, rapid urban growth in the 1500s encroached upon forests, to the extent that wood became too expensive to be burned as fuel to heat the water in bath houses. The practice of bathing for the purposes both of hygiene and enjoyment was introduced to Europe by the Crusaders, who had visited bath houses during their campaigns in the Middle East. In Europe, the demise of the bath house by the mid 16th century was brought about not only by the rapidly rising cost of fuel, but also by the behaviour of bathers that caused the spread of untreatable venereal disease. Because disease was associated with bathing, it was concluded that disease entered the body through pores opened by the heat of the bath. To keep the pores shut, warm baths had to be avoided. Only visible body parts—hands and face—were washed, and only with cold water. Bathing went out of fashion for the next 300 years, replaced by daily changes of linen undergarments and perfume to mask body odours.

Fortunately visitors can lavishly and safely bathe themselves in the sights and sounds of the south wing of the Samuel European Galleries. After a tour of the galleries, they can focus on specific theme collections—from armour to pewter, ceramics, and glass—and theme displays—tea implements, eating utensils, hygienic equipment, and more—in the north wing, which opened in 1989.

An overview of a millennium in the life of Europe shows that even in the worst of times, positive and sustaining elements can be introduced into societies by cross-cultural, social, and economic exchanges, and that societies can successfully adapt to changing circumstances and expanding horizons, even though the process may at times be painful. It makes one wonder what the world will look like at the end of the next millennium. ♣

The Royal Ontario Museum is grateful to Ernest and Elizabeth Samuel and their family whose generous contribution has made possible the development of these galleries.



When the interior decoration of cathedrals became as important as exterior decoration, craftsmen explored new media for their work, including painted wood, as is shown in the Gothic Virgin and Child of the 13th or 14th century.



An overview of a millennium in the life of Europe shows that societies can successfully adapt to changing circumstances and expanding horizons, even though the process may at times be painful

Two trends are shown in the English parlour, c. 1750. The wood-panelled walls are painted in a blinding pea-green. Painted wood was an expression of wealth because a painted finish was more expensive than stained wood (albeit less attractive to a modern eye). A punch bowl set is in the background. Punch, introduced to Britain from India, was very popular until the mid 19th century when it was deemed to cause unacceptable behaviour in those who imbibed.



An English dressing room, c.1710-1730 (below), from an upper middle-class London townhouse, shows the baroque predilection for East Asian porcelain, ceramics, and chinoiserie.



Displays of neoclassical furniture and decorative arts (above) show the elegant, simple style of this period.

DEFINING BIODIVERSITY

Through studies on DNA combined with other research, new approaches for the preservation of biodiversity are evolving

CONSIDER THE KIWI, NEW ZEALAND'S NATIONAL BIRD: FLIGHTLESS, LONG-BEAKED, laying enormous eggs—one of the wonders of the animal world. It is also near extinction, driven there by the elimination of much of its woodland habitat and by the introduction of mammalian predators by man. It can only be found in pockets on both the north and south islands. How can the kiwi be saved?

Protect its habitat. Or perhaps more human intervention is needed, such as captive breeding programs or the removal of kiwis from areas where they are somewhat numerous to areas where they are quite scarce. But then there are the natural threats that have always existed. What can stop other animals from eating kiwi eggs? And what of disease, and natural ecological fluctuations, and the vagaries of chick mortality?

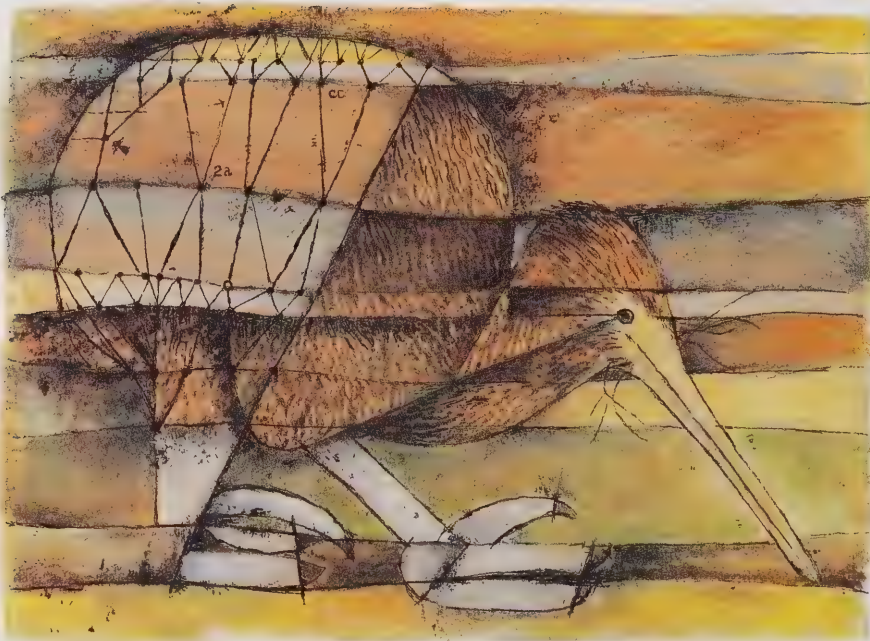
Allan Baker of the ROM's Ornithology Department specializes in the population genetics and natural history of migratory shorebirds—turnstones, dunlins, knots, and the like—and has also worked on birds of New Zealand, particularly chaffinches and kiwis. In recent research using DNA sequencing, Baker and three colleagues discovered that the brown kiwi, thought to be one species

with two subspecies confined to the north and south islands respectively, is in fact two species, one on the south island, the other on the north *and* south islands. They are considered “cryptic” species, in part because it is difficult to distinguish between them on the basis of their morphology—the way they look.

The implications of Baker's discovery for conservation are clear. In any attempt to increase the number of brown kiwis, it would be a mistake to mix the distinct species indiscriminately. On the south island, where both species of brown kiwi exist, transplanting birds from one brown kiwi population to another could accidentally cause the mixing of the two species and lead quickly to the extinction of one or both for a variety of reasons, including impaired breeding.

In this instance DNA sequencing, in combination with other research, provides scientists and conservationists with hard evidence that is permitting the creation of well-informed conservation plans. Does such research and planning mean that there is a future for biodiversity?

Baker's kiwi work is an excellent example of the contribution that ROM and other museum zoologists are making to the efforts now under way to under-



George Cook is editor of University of Toronto magazine

THROUGH DNA

GEORGE COOK

ILLUSTRATIONS BY

FERRUCCIO

stand, measure, and preserve biodiversity. Many of the Museum's curators, their associates, and graduate students are involved in this effort through the collection of animals (where they are not threatened or endangered) or blood and tissue samples, and by the isolation, analysis, and comparison of DNA. Their research describes and identifies the evolutionary history and genetic structure of animal populations by comparing, among other things, their basic genetic codes.

One centre of work in this field is the Laboratory of Molecular Systematics (LMS) located at the Royal Ontario Museum. A joint facility of the ROM and the University of Toronto, funded originally by a National Science and Engineering Research Council (NSERC) grant, the lab contains a battery of sophisticated equipment to isolate, purify, amplify, sequence, and compare regions of DNA, the genetic recipes by which organisms regulate their development and functions. Sequencing, one way of studying DNA, was invented in the 1970s. In the 1980s the equipment and techniques improved, and the cost of doing the work dropped. By the end of the decade, research institutions were able to afford to make greater use of the refined technology. The LMS has allowed ROM curators and their collaborators to learn more about the evolutionary history—phylogeny—of many endangered vertebrates, including (among others) the bluegill sunfish, monitor lizards, whipsnakes, murrelets, auks, puffins, arctic lemmings, and deer mice.

Mark Engstrom of the Mammalogy Department specializes in small mammals, particularly rodents, the deer mice of Central America among them. During the last ice age, some 20,000 years ago, the place now called Guatemala was much cooler than it is today. Vegetational zones and animal habitats that are now isolated on mountain tops were once linked in a more or less continuous cool forest located as much as 1000 metres closer to sea level. With the retreat of the ice, temperatures rose; plants and animals unable to cope with the climatic change died out, except at higher, cooler elevations. In their moves to the cool higher regions, the populations of temperate species split (like water beading on glass) and, in their isolation, began slowly to diverge.

Engstrom's DNA analyses have revealed that the conventionally recognized species of deer mouse populations he studies have diverged farther genetically than would be expected if they diverged during the most recent glacial period. In fact, the conventional idea that many species of mammals originated as a result of climate changes associated with the most recent glacial advance may be in error. Given the tendency of DNA to evolve at a relatively stable rate, the unexpectedly large divergence he has found among close-



If one
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ly related species of deer mice, suggests that major genetic divisions date from long before the end of last glaciation, reflecting earlier, ecological changes.

Engstrom and his coworkers also rediscovered the Maya deer mouse, *Peromyscus mayensis*, which had been previously captured and described only once, in 1975. "They caught maybe 10 and nobody ever searched for them again," says Engstrom, "so we went back to the same spot in Guatemala and found them. As it turns out, they have a very localized distribution, occurring only on one mountain top at elevations of 3000 metres and above." Surprisingly, *P. mayensis* differs genetically, morphologically, and behaviourally from other highland deer mice.

If scientists can learn the reason for these patterns of divergence among deer mice, then they could reveal a critical chapter of the evolutionary history of Central America; they could show the genetic mechanisms and ecological conditions that drive evolutionary change and lead to diversity in the tropics and elsewhere. While biologists have traditionally looked to the geological record to find evidence to help in their research, biological evidence can now also provide clues for geological research. The obscure Maya deer mouse is a part of the biodiversity that should be preserved, a clue to the evolution of that diversity, and a clue to the ecological history of its environment. The Guatemalan government has moved to protect the animal's mountaintop habitat, but local people still log the area and the mouse is endangered. If the trees disappear, so will *P. mayensis*. And if it goes, so will the opportunity to fully understand the reasons underlying its existence.

Preserving diversity can mean saving as many different species in a particular genus as possible. But it can also mean perpetuating genetic variation *within* a species. In fact, preserving diversity in a single species may be the way to conserve as many separate species as possible, now and in the future. Today's subspecies might become tomorrow's species. Allan Baker calls this the insurance policy approach to conservation.

"If you have a lot of variation, natural selection has a greater number of options from which to choose the next set of adaptive genotypes to help the species survive—to change it as it needs to change." Most genetic variation does not reveal itself in anatomical characteristics such as darker coloration, a longer beak, or bigger eyes. However, it does influence those aspects of an animal's life cycle, physiology, and behaviour that will become vitally important as its habitat changes.

Knots are shorebirds that migrate up and down the coast of the world's continents, breeding in the arctic and subarctic, wintering in southern Eurasia, Africa, Australia, Florida, and South America. Allan Baker's examination of their mitochondrial DNA (mitochondria are the parts of cells that produce energy) shows very little genetic variation in the bird's five major population groups, leading him to two possible conclusions. Either knots are panmictic, breeding randomly across popula-

tions, forming one large gene pool, or they all arose from a small founder population some time in the relatively recent past. Baker thinks the second explanation is probably correct because each knot population is faithful to its breeding site and migratory route; the birds are not globally panmictic.

"We deduce that they were most likely isolated south of the retreating ice during the Pleistocene," he says. "Reduced to a small population, they lost heterozygosity and became essentially the same. Over the last 20,000 to 30,000



years they expanded out of their glacial refuge and returned to their worldwide migratory routes. Their expansion is so recent, in evolutionary terms, that the five morphologically distinct groups of birds have not yet recovered much genetic variability.”

Given the absence of diversity in mitochondrial DNA, is it necessary to worry about the survival of each knot population? If the group that breeds in Siberia and winters in Australia is threatened by loss of habitat (and therefore food and fuel for the journey south and back), should conservationists console themselves with the thought that there are other viable populations elsewhere in the world? Baker resists this kind of argument. The problem, he says, is that not enough has been learned about the genetics of knots to be able to establish conclusively that the five subgroups are not, in fact, well on the way to becoming separate species.

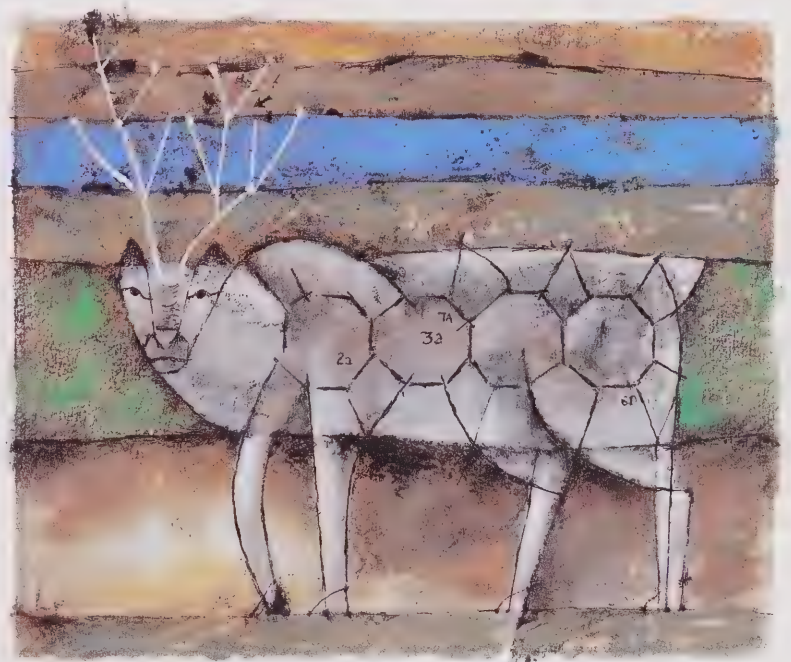
“The conservation implication might be that it doesn’t matter if someone wipes out all knots in Florida or Panama because they’re no different from birds in Australia or South Africa but of course that’s not correct,” says Baker. On the morphological evidence and evidence from studies of their migratory routes, these populations are very discrete biologically. “The trick,” he says, “is to find genetic systems evolving fast enough to see divergence occurring.”

He plans to continue to analyze knot DNA, particularly the part that codes for the t-cell receptors of the bird’s immune system—the Major Histocompatibility Complex. Recognition sequences in MHC genes are thought to evolve at a relatively rapid rate so that the immune system can recognize new pathogens.

The same phenomenon—little apparent genetic variation in morphologically distinct animal populations—appears in many ecological contexts, and not just those involving birds, as Judith Eger of the Mammalogy Department knows well. She is currently studying the Peary caribou of the Arctic. The Peary caribou is smaller than the barrenland and woodland caribou, and it has antlers of a different shape and size. Its number has declined dangerously in recent years. In the 1970s there were some 30,000 animals. Today there are only about 4500 left, 3000 on the high islands—Prince Patrick, Eglinton, and Melville—and 1500 on Banks Island. In 1992 the Peary caribou joined the growing ranks of the endangered. The loss of genetic diversity brought about by declining numbers has made the group vulnerable to extinction from many sources, including disease. When the Peary caribou was declared endangered, Eger applied to the World Wildlife Fund for money to perform the necessary genetic analysis. The WWF agreed and has supported her work. She is trying to establish the evolutionary relationships of the caribou populations and what they reveal about the natural history of the north before and after the last major glaciation, but her work will also expose the degree of genetic difference among the three varieties of caribou. The final results of her research have not yet been published, but whether or not they show large or small genetic differences between the Peary and the other kinds of caribou, they will play an important part in decisions concerning conservation.

Bob Murphy studies amphibians and reptiles in the ROM’s Ichthyology and Herpetology Department. One of his particular interests is animals that are genetically unusual because they have more than the normal two sets of chromo-

The loss of genetic diversity in the Peary caribou brought about by declining numbers has made the group vulnerable to extinction



somes. While examining the breeding ecology of Ontario salamanders with elevated numbers of chromosomes, Murphy and his colleagues discovered the first known, naturally occurring, pentaploid vertebrate—an animal with an extraordinary five sets of chromosomes.

Investigations are also being carried out on the evolutionary origins of a group of lizards in the Caucasus Mountains of southern Russia, Armenia, Georgia, and Turkey. These lizards are unique in that there are only female members in many species; males are not required for reproduction.

Apart from investigating reptiles and amphibians with unique genetic mechanisms, Murphy, with the support of the National Geographic Society, has carried out genetic research on the giant salamanders of the Yellow, Pearl, and Yangtze rivers of China, which has yielded important conservation data. He and his colleagues have found that there is greater genetic diversity in animals in the Yangtze than there is between the Yangtze group and those from the other two river systems. According to Murphy, "During conservation people ought to consider where the source animals are from before they are used for captive propagation and not just haphazardly attempt propagation and reintroduction. There is genetic structure of wild populations that should be carefully considered."

In fact, Murphy warns against mixing varieties and species where they do not naturally occur together. If the introduced animals are not as well adapted to their new environment as their native cousins, but have a slightly higher reproductive capacity, they might drive the better-adapted native animals to extinction and suffer themselves, in the long term, from the impact of an alien environment. Some animals and plants are finely tuned; any displacement is fatal. "If something is extirpated, even locally, then what you want to be able to do is reintroduce the genetically most similar beast back into that population." Murphy's studies also include the phylogeny of rattlesnakes, and their results will have implications for the treatment of venomous snakebites.

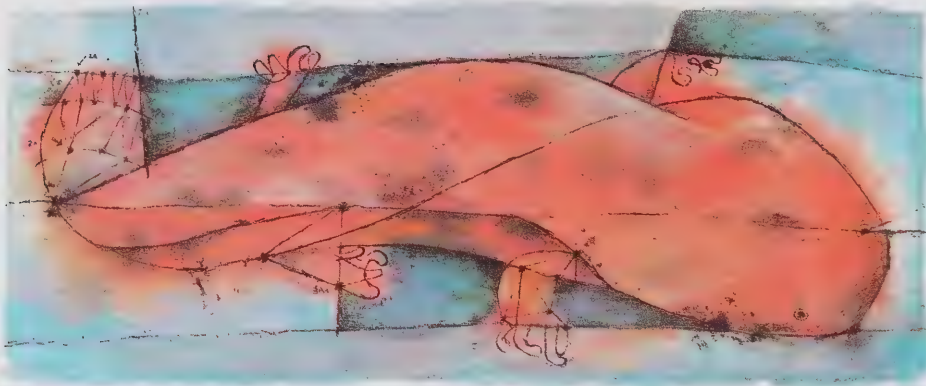
Ed Crossman, a ROM ichthyologist, has witnessed several revolutions in zoo-

logical studies at the institution, and has noted the impact on one area of his research—the biogeography of fishes. His work has involved research on particular Canadian species of fishes, an analysis of fish distribution and community structure in Algonquin Park, and an international study of the group that includes mudminnows, pikes, and pickerels. Extensive work on the largest species of this group, the muskellunge, has been carried out at the ROM for decades.

Besides the biogeography of mudminnows, pikes, and pickerels, Crossman is investigating their evolutionary history. In part this includes the relationships between fish species within the group as well as relationships between species in this and other groups.

To do this work thoroughly a sound understanding of evolutionary genetics is essential, Crossman says. "In a very general way we're now really getting down to what's happening in regard to relationships and evolution of fishes rather than what was perceived in the past on the basis of their external similarities." Knowing the degrees of difference within a species of fish is as important as it is in other animals. Recent studies suggest that there may be two species of muskellunge and, while Crossman is sceptical of the two-species hypothesis, he advises caution. Much concern in the past has centred on the adverse effects of introducing non-native species of fish to a habitat. Studies now

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show adverse effects from the introduction of fish species that are the same as the native species but that have adapted to another environment, thereby acquiring “foreign” genes.

Research in molecular systematics establishes relationships within and between species, which can help to find the answers to some particularly difficult conservation questions. For example, if there are 10 species in one genus and only three can be preserved, how are the three to be chosen? If a region is home to 2000 species in 500 genera and all 2000 can’t be saved, how do conservationists decide which species must be preserved? If financial constraints mean that only three sites of 10 can be protected, what are the criteria for choosing the three sites?

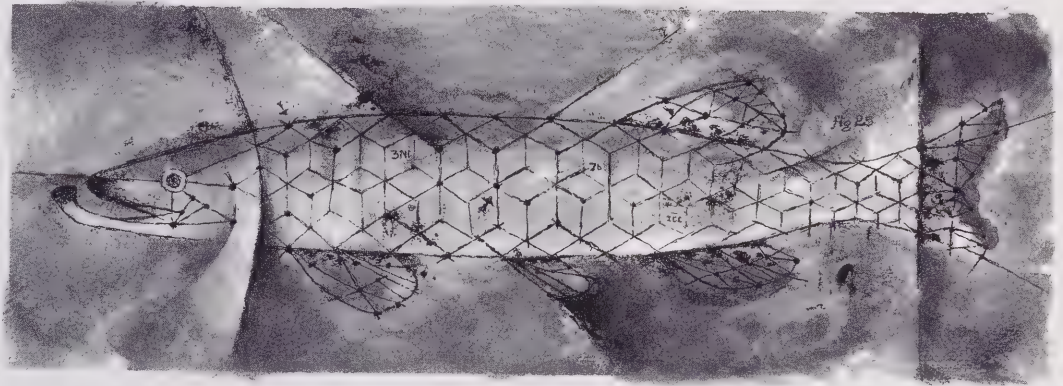
An evolutionary family tree—phylogeny—for the species or genus in question, based on DNA sequencing and other molecular and morphological data, is a useful beginning. For example, if the tree has three main branches (genera) and each branch has five secondary branches (species) and three tertiary branches (subspecies), and for various reasons all 45 subspecies can’t be protected, a decision might be made to preserve at least one species in each genus, or two species and three subspecies. “In this case you might try to conserve the greatest breadth of evolutionary divergence that’s represented in that group,” says Mark Engstrom. Alternatively, one might choose to protect those species facing immediate extinction regardless of their evolutionary position—the conventional approach for large mammals—although this might not preserve the greatest diversity.

How much time and money should be spent to preserve a small, isolated, island population—say, 30 to 50 individuals—which happens to be very closely related to a much larger population on the mainland? “In fact,” Engstrom says, “it might be more important to try to protect several forms on the mainland that are widely distributed and common rather than the one on the island. It’s all about allocating resources. However, if it turns out that the species on the island is a real relic, not very closely related to any other species group, and not the nearest relative of the species that’s 20 miles away on the mainland, that might give it a higher priority for conservation.”

In an ideal world such unpleasant choices would never arise but in a rapidly developing landscape and under constraints imposed by limited financial resources, these kinds of choices are made every day. The question is what information is needed for constructive decisions.

Natural history museums, like the ROM, are the repositories of biological diversity. By understanding the population genetics of Guatemalan deer mice, biologists begin to understand something of the evolutionary history of Central America and of evolutionary change itself. By understanding the kiwi, giant salamander, caribou, and muskellunge, biologists can make constructive plans for conservation and wildlife management. And by seeking genetic differences in populations of knots, scientists pursue new ways of analyzing the genome. In the final analysis, of course, genetics can’t dictate how to preserve biodiversity—as Engstrom points out, there will be difficult decisions to make—but it does provide a set of options by revealing the degree of diversity in a species or genus. Never before have humans known so much—or had so much to learn—about the world we stand to lose. ♡

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THE DEATH OF KING BAKAFFA, A STORY TOLD ON SILK

*Enormous silk
hangings in
collections of the
British Museum
and the Royal
Ontario Museum
illustrate dramatic
moments in
Ethiopian history*

MICHAEL GERVERS



And the herald cried out, saying "The King of Kings Bakaffa is dead and the King of Kings Iyasu has ascended to the throne. ..." Thereafter, Queen Mentewwab [Bakaffa's widow] and King Iyasu [their son] ordered the burial of the deceased king. He was wrapped in precious garments, perfumed with expensive scents, and carried on an ivory bier covered with brocaded cloth. The patriarch, Krestodolu, the chief abbot, Takla Haymanot, and the royal chaplain, Walda Hawaryat, with all the clergy, came bearing golden crowns and carrying crosses and incense burners of gold. ... They buried him with sobs and tears in the Church of the Patriarch. ... Then the dignitaries prepared an effigy of the departed king, placing his regal attire on a mule, [and set out in military procession] with the royal parasols, flags and drums. Proceeding to the outer walls of the palace came first the fusiliers bearing arms; following, in front of the effigy, came the sword-bearers; after it were the shield-bearers. ... The dignitaries were filled with the deepest sorrow. ... King Iyasu, dressed in mourning, cried, standing on the palace wall-walk overlooking the dignitaries. ... The mourning endured for three days.

A three-panelled card-woven silk hanging in the textile collection of the Royal Ontario Museum (facing page) appears to describe the Feast of the Invention of the Holy Cross, which took place after the burial of the Ethiopian king Bakaffa. The king's burial is portrayed in the single-panelled hanging (left), which belongs to the British Museum.

THIS SAD TALE OF THE BURIAL AND LAMENTATION of King Bakaffa (1721-1730), taken from the royal annals of Abyssinia for the reign of King Iyasu II (1730-1755), may provide a partial explanation for the scenes appearing on two great card-woven silk hangings, one in the ethnographical section of the British Museum (BM) and the other, three times larger, in the Textile Department of the Royal Ontario Museum.

The hanging at the British Museum consists of a single long panel measuring 530 centimetres by 70 centimetres, which displays six figurative registers arranged vertically in hierarchical order. In the uppermost register, placed in an architectural frame, there is a square box covered with an elaborate red textile with white decoration. The box is set on a four-legged stand. A male head bearing a turban-like crown can be seen on top of the box, and two winged figures, with crosses portrayed on torso and stomach, stand on either side.

There is good reason to believe that this scene represents the lying in state of King Bakaffa: his bier, covered with red and white brocade, is surmounted by his crowned head in effigy and flanked by the archangels Michael and Gabriel (the two are invariably painted on the doors leading to the inner sanctum or *maqdas* of Ethiopian Orthodox churches). The presence of the archangels, and the step-like squares directly below the feet of the stand suggest that the event is taking place at the *maqdas*. Only priests and the king were permitted to enter the inner sanctum.

Directly below, in the second register, there is a female figure wearing an elaborate tiered crown and a diamond-patterned fringed dress reminiscent of a fine oriental

*Michael Gervers is a research associate
of the Textile Department, Royal Ontario Museum*

PHOTOGRAPHS COURTESY MICHAEL GERVERS

silk. A blue silk cord, the *mateb*, hangs around her neck to emphasize her adherence to Christianity. This figure is the widowed Queen Mentewwab, attended by two sets of handmaidens carrying fly whisks and pouches, all with their hands raised in prayer.

The third register depicts a young, bare-headed male between two sets of attendants holding standard crosses. This must be the boy-king Iyasu. He was only seven years old when he came to the throne but, as the chronicle records, when seen watching the dignitaries from the palace walls during the mourning ceremonies for his father, "he bore the perfect resemblance of King Bakaffa, in his appearance, grace and beauty, dressed as he was in the king's apparel." Like his mother, he is depicted with hands raised, wearing the *mateb* over a fine silk garment and court shoes with upturned toes. His mother wears the crown because she acted as regent during his minority and, according to the chronicle, it was he who not only acknowledged her as the real ruler of the country, but who also declared that she should wear his crown: "Make my mother reign, crown her with my crown because without her my reign cannot go on."

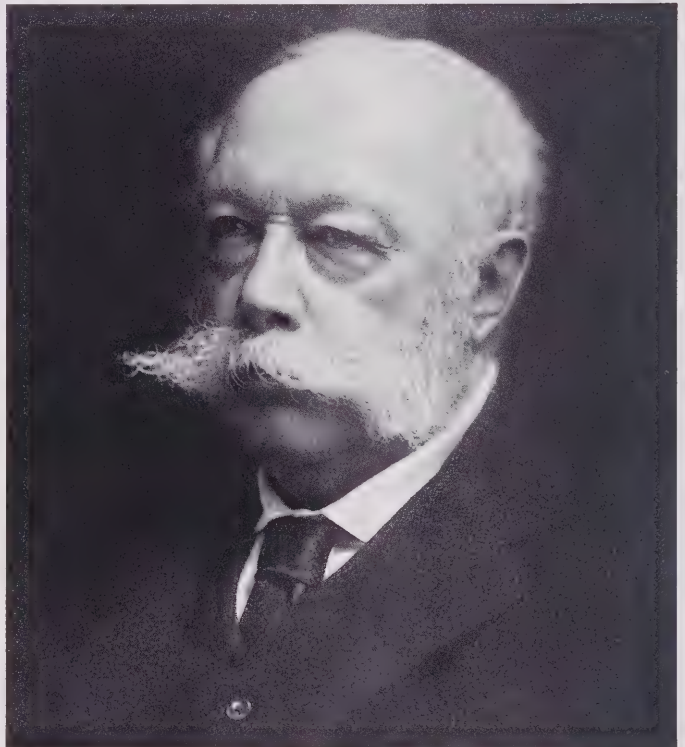
Registers four, five, and six represent the royal military procession; however, the formation differs from that described in the chronicle. Here five sword-bearers with standard crosses appear above four shield-bearers carrying parasols, while the lowest register reveals five fusiliers wearing swords and cartridge belts, separated from each other by their primitive snap-haunch muzzle-loaders.

The Feast of the Invention of the Holy Cross fell just two days after the period set aside for Bakaffa's lamentation. Normally a joyous occasion, the festival was shrouded by sadness.

There was sobbing instead of dancing. ... The Monday following, the dignitaries and the clergy gathered at the damara [a collection of wands heaped together at the Feast of the Cross]. Thereupon the Royal Chaplain, holding the cross of gold called out "Jesus said to the Jews: Believe in me and in my Father; today I shall enlighten my followers with my Cross". ... Then the clergy recited matins and the hymn from the Degguwa [hymnal] which says: "This Cross, this Cross is our redemption, our salvation." Thrice they circled the damara with wooden torches, crying "Eyoha, Eyoha." This "Eyoha" is said on only two occasions: when the king ascends the throne and at the Festival of the Cross. Thereafter, the damara was set ablaze. ... According to custom, the royal confessor gave the blessing to Iyasu, the King of Kings, and to Queen Mentewwab. After which King Iyasu and Queen Mentewwab held solemn audience in the Chancery. ... The king and the queen reviewed the troops.

This second quote from the royal annals of King Iyasu describes the celebration of the Cross that took place af-

The feast fell just two days after the period set aside for Bakaffa's lamentation.



Normally a joyous occasion, the festival was shrouded in sadness



ter the burial. The great three-panelled hanging in the ROM appears to represent these very ceremonies, and if the chronology of events was followed, it was presumably created after the British Museum hanging, possibly as a companion piece.

Although abbreviated in its iconographic content, the central panel of the ROM textile is similar in many ways to its BM counterpart. Despite the deteriorated state of a strip down the middle of the panel, four vertically arranged registers, each containing three figures, are clearly distinguishable.

At the top, three crowned ecclesiastics hold crosses, with their hands raised in prayer. They may well represent the patriarch, chief abbot, and royal chaplain who attended Bakaffa's funeral. Below them, a standing female figure wearing a tiered crown, a *metab*, and upturned court slippers corresponds to the figure identified as Queen Mentewwab in the second register of the BM hanging. She stands between two female attendants. Similarly, the third register, depicting a bare-headed man with his hands raised in prayer, seated between two standard cross-bearers, can be associated with the figure identified as the young King Iyasu in the third BM register. The fourth and final ROM register depicts three sword-bearers, representing the military. That Queen Mentewwab is crowned and King Iyasu is not, even here where he is seated on what can be nothing less than a throne, points to his minority and her superiority as regent.

Two figural units comprise the left-hand panel. The upper of the two represents a robed male figure with a lion or lioness between a pair of open-bill storks. Of all the scenes on the hanging this is the least understood, although there are a number of possible interpretations. For example, Abba Samuel, a popular 15th-century saint from the Wäldebba wilderness northwest of Gondar is frequently depicted riding on a lion. On the other hand, the lion of Judah is a symbol of Ethiopian kingship. Neither of these interpretations explains the presence of the two birds, however.

The lower unit is the most elaborate of all those appearing on the hangings. In the centre there is a large, golden, diamond-shaped processional cross flanked by four smaller crosses of similar shape and other liturgical objects such as hand crosses and incense burners. At the top there are three small red crosses on a gold background and two rectangles, one green and one red.

The lower of the two scenes in the right-hand panel reveals the meaning of this ensemble. There, the crucified Christ with blood dripping from his feet appears between two soldiers (rendered in profile under dark rectangles to emphasize their evil nature) holding what are perhaps instruments of torture. The group is flanked by two praying figures, presumably the Virgin Mary and the apostle John. Three small red crosses above Christ's

Facing page: George Sweny, a lieutenant in the 4th King's Own Regiment, participated in the 1868 battle against Emperor Theodore of what was then Abyssinia. He purchased the wall hanging, which now belongs to the ROM, in an auction of the spoils of war. This page: One of three sword-bearers, representing the military, in a scene from the ROM hanging.

head symbolize Golgotha, and the green and red rectangles above the praying figures represent the sun, which went dark at the moment of Christ's death, and the moon which turned into blood.

Finally, in the upper part of the right-hand panel there is a scene representing an ecclesiastical ceremony. In the centre a bare-headed figure wearing the *lämd*, or deacon's cape, stands holding the Gospel above his head. He is flanked by a pair of golden censers, rendered in elaborate detail, and hand crosses on a blue ground. To the far right, a crowned priest also wearing the *lämd* stands holding a timbrel-like musical instrument, known as the *tsenatsol* or sistrum, in his left hand. To the left of this group a robed praying figure stands, apparently serving as an assistant.

Whether or not the ceremony is part of the celebration of the Feast of the Holy Cross may never be known for sure. It is clear, however, that the overall theme of the side panels of the ROM hanging is the glorification of the Cross, symbolizing as it does the redemption of man through the Resurrection of Christ. The figures in the four registers of the central panel appear to be participants in the celebration.

Although the BM hanging and the central panel of the ROM hanging describe a secular event, in Ethiopian culture, hangings of this size are reserved for church furnishings, especially for separating the entrance to the *maqdas* from the nave. Given the subject matter of the ROM and BM panels, it seems more than likely that they were commissioned by and for a church patronized by the royal family, and very probably by

Queen Mentewwab herself. What may be referred to as the royal portrait panels would have served to commemorate the passing of King Bakaffa and, more importantly, to provide a visual record of the transfer of real power from him to her rather than to their son.

One of the great mysteries surrounding these extraordinary textiles is the identification of the workshop that made them. With the exception of these works, card-weaving is otherwise undocumented and unknown in Ethiopia. The Ethiopian royal family frequently brought to the capital skilled craftsmen from abroad to work on contract. They would have departed after the job was completed, which may explain the absence of any evidence of card-weaving elsewhere in the country. On the other hand, the style and nature of the people and objects depicted are typically Ethiopian. The weavers, therefore, were thoroughly familiar with the culture; they were also highly skilled in their trade. Each panel required up to 1448 warp threads manipulated by 362 cards bearing four warps to a card. Several pairs of hands working in unison would have been required to rotate the cards in groups or singly to achieve the highly individualized patterning of each 70-centimetre width.

In the top register of the British Museum hanging, the lying in state of King Bakaffa is signified by the crowned head over the bier. Directly below, Queen Mentewwab wears an elaborate tiered crown and a diamond-patterned fringed dress. A *mateb* hangs around her neck to emphasize her adherence to Christianity. She is attended by two handmaidens.

PHOTOGRAPH COURTESY MICHAEL GERVERS



**Several pairs
of hands,
working in
unison to
rotate 362
cards, created**



**the highly
individualized
patterning
of each panel**

How did these enormous, rare, spun silk, card-woven pieces make their way to London and Toronto? In 1866, Theodore, the Emperor of what was then Abyssinia, had a serious falling-out with Queen Victoria. She sent an expeditionary force of more than 32,000 men, led by Sir Robert Napier, to confront him. After marching across 400 miles of difficult terrain, they laid siege to the emperor at the highland fortress of Magdala, where he committed suicide on 13 April 1868. George Augustus Sweny, a lieutenant in the 4th King's Own Regiment, was one of Napier's troops. Sweny had been instructed by Sir Robert to prevent the looting of Magdala by the troops and "to see that all things which were of any intrinsic value should be handed over" to a Prize Committee.

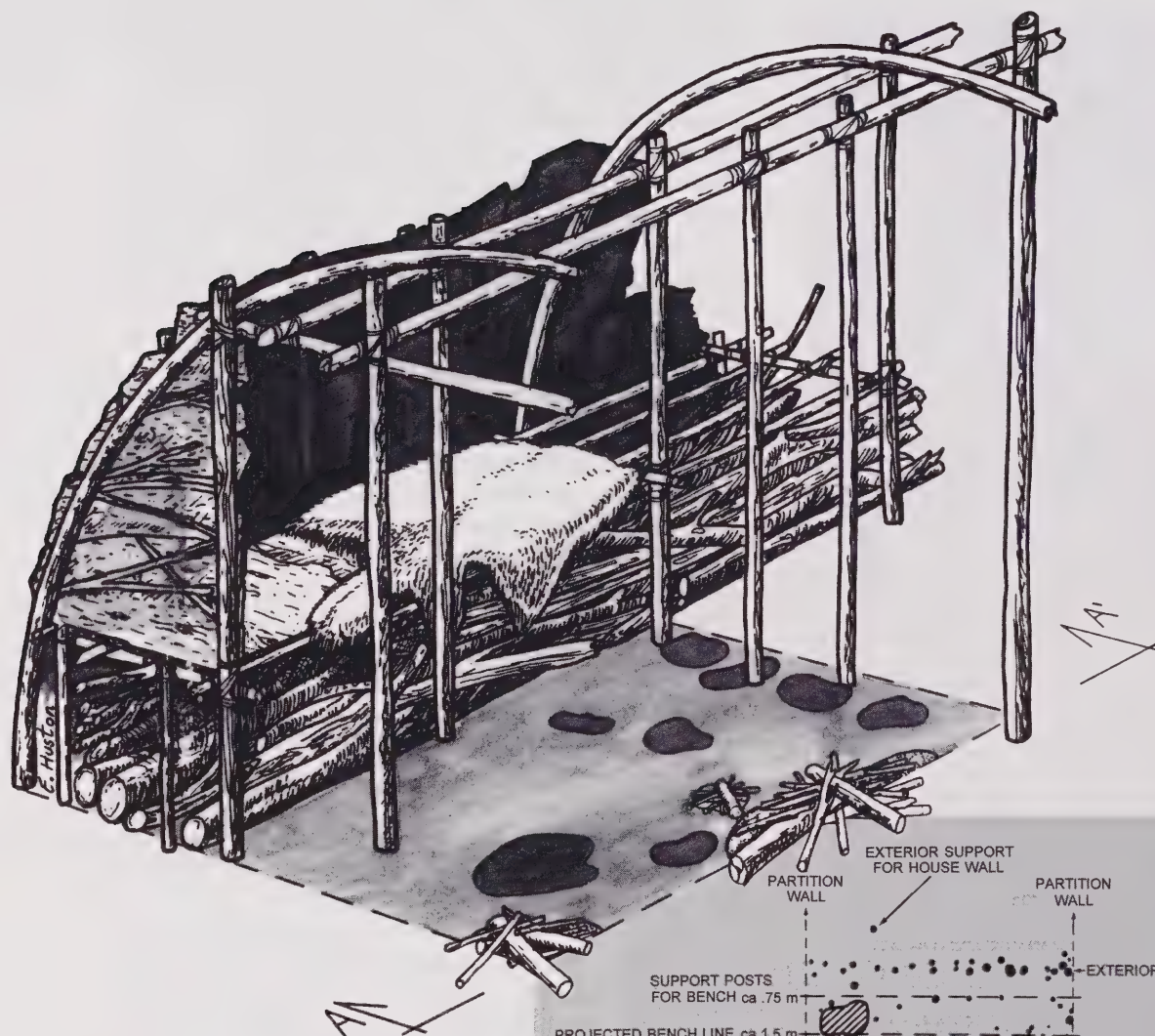
All objects secured by that committee were to be sold at public auction. During the auction, which took place on the Dälanta Plain on 20 April, Sweny purchased the hanging now in the ROM. At the same time, the panel in the BM was acquired for the Realm by Mr. Richard R. Holmes of the museum's Manuscripts Department. After retiring as a lieutenant-colonel, Sweny emigrated to Toronto in about 1885, bringing the hanging with him. He presented it as a loan to the ROM prior to 1914; in 1922 the loan was confirmed as a gift by his son, General William Sweny.

It is in the correspondence of 1914 between Charles Trick Currelly, the ROM's founder and first director, and George Sweny that the hanging was first linked to Gondar. Sweny states that Birou Goshu, the chief of Godjam Province, described the hanging as having served as a screen separating the inner sanctum in "the ancient cathedral at Gondar" from the body of the church. He also confirmed that Theodore had carried it off when he sacked the town. Goshu had been taken prisoner by Theodore during his campaign against Gondar in 1854, and Sweny had personally freed him from his chains. If Goshu's report is accurate, there is every reason to believe that both the ROM and BM hangings were made for the Church of the Patriarch in Gondar, where King Bakaffa is known to have been buried.

In June of 1993, greatly in need of washing and repair, the ROM hanging was sent to the Canadian Conservation Institute in Ottawa. After 18 months of painstaking restoration carried out under the able supervision of Mrs. Michaela Keyserlingk, senior conservator of textiles at the CCI, the Gondar hanging was returned to the ROM Textile Department in January 1995. ♡

In one of the registers of the ROM hanging a robed male figure stands with a lion or lioness between a pair of open-bill storks. There are a number of interpretations of these figures, including the lion of Judah, which symbolizes Ethiopian kingship. Another is Abba Samuel, a popular 15th-century saint frequently depicted riding a lion.

PHOTOGRAPH COURTESY THE CANADIAN CONSERVATION INSTITUTE



The artist's conception of an apartment in a longhouse (above) is based on the diagram (right), which provides an overhead view of the archaeological evidence.

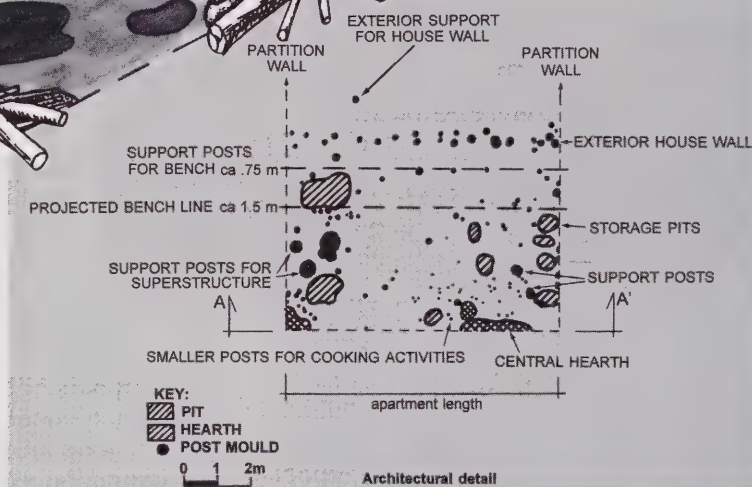


ILLUSTRATION BY EMIL HUSTON

Life in the Longhouse

BECAUSE THEY WERE MADE ENTIRELY of organic materials, all that usually remains of Iroquoian longhouses after several hundred years is scant evidence of their floor plans. For several years I have focused my

research on the analysis of excavated floor plans in order to create a picture of the structure of longhouses and how they were used.

Generally speaking, the longhouse was a multi-family dwelling,

occupied by people related through matrilineage. Each family lived in a partitioned area, which could be described as an apartment. An equal number of apartments faced each other on either side of hearths posi-

tioned down the centre of the longhouse.

Bernard Rudofsky, in his book *Architecture Without Architects* (1964, University of New Mexico Press, Albuquerque) has shown how buildings not constructed under the direction of people with specialized training still display specific structural patterns. Following this line of thought, I believe that it possible to associate the buildings with certain societies and cultures. In the case of the northern Iroquoians—a group that includes the Huron, Neutral and Petun of Ontario, and the Mohawk, Oneida, Onondaga, Cayuga, and Seneca of New York—my research indicates that there was a unit of measure used for construction of longhouses on sites dating as early as AD 1000, and that it continued to be present in the era of European contact. This unit of measure was called the *ten*, an Iroquoian word designating a length of about 1.5 metres.

By applying this measure, it was possible to identify partitioned liv-

ing areas inside the Ontario longhouses that were otherwise undefined except in the journals of European explorers and traders and in the dictionaries compiled by missionaries, who had visited and lived in the structures. On New York Iroquois sites the former presence of partitions is often indicated by rows of post moulds that extend from the exterior side walls into the middle of the house. In Ontario, such rows of posts are not found, and as a result it had been assumed that partitioned apartments were not a feature of Ontario longhouses.

Inside the apartments, separated by bark partitions, family members cooked, ate, slept, and carried out other domestic activities. There were no rooms that had specific functions such as kitchen or bedroom. It appears that the only specially designated spaces were the communal storage areas located at either end of the longhouse.

Benches or platforms, measuring 1.5 metres wide and about 1.5 me-

tres high were located along the side walls of the longhouse. They were used to store personal goods, and also provided seating during ceremonies. Dry wood was stored underneath them. Storage pits were dug into the floor and, when in use, they were covered with pieces of bark and possibly earth so that they were not hazardous to those walking in the area. When they had served their usefulness, they were filled with earth or garbage.

Apartments varied from site to site according to the period, the formats used by different Iroquoian tribal cultures, the duration of occupation, and their situations in the longhouses. In Ontario the apartments were usually 4.5 metres long, although some centrally located apartments extended to nearly 6 metres in length. It is possible that the larger apartments belonged to occupants with special status and that the extra space provided areas for ceremonies. Apartments of equal length faced each other on

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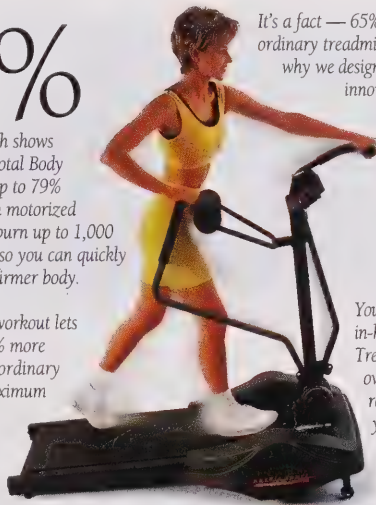
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either side of the longhouse.

A close look at one apartment shows how its Iroquoian occupants would have lived. The apartment is located in House One of the Seed-Barker Late Iroquoian site, located on the Humber River, north of Woodbridge, Ontario. It has been determined that the site was occupied in AD 1550 and that it was a large cosmopolitan village. House One was excavated for the Royal Ontario Museum by Bryan Snow. It consists of three pairs of bilaterally symmetrical apartments, each approximately 6 metres long.

If isolated from the surrounding longhouse, the southern central apartment appears as no more than a seemingly meaningless agglomeration of post moulds and features on the ground. Covering about 24 square metres, the apartment would have provided, on average, 4 square metres of space for each member of a typical family of six. Most of the central hearth is situat-

ed in the opposite apartment and so very little space was lost; a smaller hearth, however, was shared with an adjacent apartment. There are marks indicating partitions and a line projecting where the interior bench extended about 1.5 metres from the exterior wall. Evidence of another row of support posts for the bench appears approximately 0.75 metres from the wall.

Outside the exterior wall, there are signs of posts that must have served as external support. Larger interior support posts were positioned to the side of the apartment. Large posts located in the central area may have extended to the roof, whereas smaller posts around the hearth probably served as spits and other forms of cooking aids. Storage pits were located near the partition walls in the apartment; one large pit was situated just under the edge of the bench. It may have been more accessible than pits located farther back under the bench where wood was stored.

While it is clear that the partitions were above the bench, it is not clear if they extended forward into the central area of the longhouse. In the secluded and sheltered space around the bench, the family had privacy. Mats may have been suspended in front of the bench to completely separate the area from the central common space. Given that all storage pits were at the sides or under the bench and the central hearth was mainly situated in the opposite apartment, this apartment was likely used for gatherings.

It is a challenge to make dynamic the static archaeological record. While the pictures created of life in prehistoric times may be based on hypothesis, they nevertheless suggest new directions for research that may confirm the theories.

MIMA KAPCHES

Mima Kapches is associate curator in the New World Archaeology Department, Royal Ontario Museum

ROTUNDA

the magazine of the Royal Ontario Museum

In the next
issue of *Rotunda*...

Death and Taxes

*What can we learn
from the decline
of Classic Maya
civilization?*

By David Pendergast



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This very stylish perfume bottle from the 1920s, in the ROM's European collection, is made from celluloid, a potential time bomb.

Dealing with a Plastic Pioneer

FOR MANY PEOPLE, PLASTICS ARE STILL associated with items that are modern, cheap, imitation, or even fake. Cellulose nitrate, more popularly known as celluloid, xylonite, ivoride, or French ivory, is certainly seen this way, but when it was first exhibited in 1862 by Alexander Parkes at the Great Exhibition in London, it was regarded as a delightful novelty. During the 1870s the Hyatt brothers introduced innovations in mix-

ing, manufacturing, and marketing that established celluloid as one of the most versatile and popular of the synthetic materials. For nearly a century it was the most widely used plastic until it was gradually replaced by less flammable substitutes.

By their age alone, early celluloid works qualify as genuine antiques, but many are also finely crafted, hand-finished pieces. Excellent imitations of semi-precious gems, sha-

green, tortoiseshell, coral, and ivory were produced in quantity, saving the lives of countless elephants and turtles.

As a result of its ubiquity and its many disguises, cellulose nitrate is often an unsuspected presence in museum and private collections of textiles, books, sculpture, ethnographic materials, and decorative arts. It is also increasingly valued as a collectible material in its own right.

PHOTOGRAPH BY BRIAN BOYLE



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CONSERVATION NOTES CONTINUED

Unfortunately cellulose nitrate is like a time bomb in collections. After a period of imperceptible aging, deterioration suddenly accelerates and the polymer emits increasing amounts of acidic nitrogen dioxide gas that can damage neighbouring objects. At worst it is a fire hazard. Although artifacts are not as highly nitrated and therefore not as prone to spontaneous combustion as photographic film, they do have an unpredictable life expectancy.

The danger point cannot be predicted on the basis of age; it is determined by the original manufacturing process and by the way in which each artifact is displayed or stored. Emissions may continue undetected for years before the plastic is visibly altered. Because of air currents and differing sensitivities it is not always the materials situated closest to the degrading piece that are most affected. Damage to antiquities can be extensive and irreparable before the offending piece is identified.

Many collectors, after learning of the hazards of this plastic, get rid of their celluloid pieces (as well as those made from other harmless plastics). This is a pity, because they are the irreplaceable representatives of a very poorly studied technology, and many of them are probably decades away from becoming unstable.

The Conservation Department of the Royal Ontario Museum has been actively researching the problem because the Museum has a growing number of plastics in its collections. A method for detecting those pieces which are hazardous has been perfected, and tests are being conducted on simple techniques that will prolong the life expectancy of celluloids without causing damage to other artifacts. Conservators are postponing disaster while they investigate some of the promising treatments that are being developed.

JULIA FENN

Julia Fenn is a conservator in the Conservation Department of the Royal Ontario Museum

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❖ BOOK REVIEWS ❖

Shipwrecks, Clothing, Canadian Architecture, and more...

“SHIPWRECK,” NORTHROP FRYE once remarked, “is the most important form of transportation in the 19th-century English novel.” Of course shipwrecks have other important uses as well. Underwater archaeology, considered as an almost freestanding discipline, is less than two generations old (the ROM was one of the institutions that pioneered it). Yet the field has already contributed a great deal to knowledge of the past as a whole, not just of maritime history and technology (though these areas have received a lot of attention lately). Even when in a state of near-total decomposition, wrecks are often self-contained records of the societies they represent. Because they were all of a piece and of a time and perished in an instant, ships, or what’s left of them after years of submersion, are complete statements in themselves.

Unfortunately, the search attracts many adventurers, treasure-hunters, and amateur historians, who do far more harm than good in terms of recovering lost understanding. Such people differ fundamentally from scholars in that they approach the field from the opposite direction, with different aims, even different tools. We all remember media stories a decade ago about the discovery of certain rich Spanish treasure ships, part of the silver fleet sunk in a hurricane between Florida and the Bahamas around the turn of the 18th century. The first salvage on these ships was actually carried out, not long after the loss, by Sir William Phipps, the provost governor of New England (who has a certain place in Canadian history as the person who mounted the English attack on Port Royal in 1690 and then

failed to capture Quebec). After that, the exact locations were lost. Their eventual rediscovery came about either because of the availability of SCUBA gear in the 1960s (for these were shallow-water wrecks—not ones awaiting the latest developments in robotics) or because the Archivo General de las Indias, located in Seville, was reorganized. Take your pick.

At first glance, Nigel Pickford’s large-format book **The Atlas of Shipwrecks & Treasure: The History, Locations of Treasures of Ships Lost at Sea** (Penguin, \$39.99) might seem a mere treasure-hunter’s book, the sort turned out by untrained, so-called archaeologists like Robert Marx. In fact, the fancy packaging, with maps, colourful sidebars, and all manner of jazzy graphics, cannot disguise what’s actually a serious and worthwhile effort, concerned ultimately with translating scholarly information for the general history-reading audience. Pickford covers the whole field from the ancient to the contemporary and tries to give all continents and oceans equal emphasis. He is thus naturally forced to speak in broad terms even when dealing with specific wrecks. One test of such international books is how accurately an author—in this case a British one—deals with Canada; I found all of his Canadian references adequate and correct as far as I could tell.

A highly informative companion piece to Pickford’s book is **Wooden Ship Building and the Interpretation of Shipwrecks** by J. Richard Steffy (Texas A&M Press, US\$75), an intrinsically fascinating piece of work that traces ship-building techniques and style in ancient, mediae-

val, and post-mediaeval times, drawing on the ever-expanding knowledge gathered from underwater sites. It is aimed at the specialist as well as at those who simply want to understand how slowly the relevant trades and crafts changed, yet how susceptible they always were to local cultural considerations. There are many architectural drawings of hulls and other details for illustrative and comparative purpose. These are partly what make the book valuable.

IN A WAY, A PARALLEL CAN BE DRAWN here between the history of ship-ping and the history of clothing and costume. The latter is another field of enquiry intriguing to collectors and museum-goers and alive with riveting possibilities for illustration. Traditionally, most of the writing done in costume history has been social history, and the top layer of it is excellent popular stuff. An example of a practitioner who makes the most of the possibilities is the American clothing historian Anne Hollander, whose new book **Sex and Suits** (Random House, \$35) takes up where her 1978 work, *Seeing through Clothes*, left off. How much we owe, then, to a pioneer such as Norah Waugh, who died in 1966 after decades devoted to studying actual fashions in the manufacture of clothes rather than simply the ebb and flow of particular types and styles of garments. Her great work was *The Cut of Women’s Clothes 1600-1930*, which was virtually unique in drawing not just on pictorial and anecdotal evidence but also on actual patterns and other materials—to say nothing of quotations from contemporary literature and other sources

to show why and how garments were made the way they were. She was as much a historian of tailoring as of style; that's what made her so important. Fortunately there are now new editions of both **The Cut of Women's Clothes** (Penguin, \$125) and its thinner companion volume **The Cut of Men's Clothes 1600-1900** (Penguin, \$75), which is similar in format and betrays the same sort of double-hand-stitching in its research.

An even more heroic one-person effort is Harold Kalman's long-awaited two-volume study, **A History of Canadian Architecture** (Oxford University Press). At \$95 for the set, this is a wonderful bargain. In recent decades, most research into architectural history has been purely local. The last person to attempt a serious general survey of Canada's architectural wealth was Alan Gowans (now living in the United States, and one of Kalman's advisers on this book); his book *Building Canada: An Architectural History of Canadian Life* appeared in 1966. So while there is much new to be said about Canadian building in the past generation or so—a subject Kalman wisely sees as inseparable from land-use, density, and other urban planning issues—he is at his best in the first volume, showing how Canadian building was the untangling of various native, British, European, and American traditions (military as well as civilian), as growing political and economic confidence necessitated. It seems to me that Kalman's chapter "Classicism in Upper and Lower Canada" shows him at the top of his form, fully in command of the material, drawing on a personal knowledge even deeper than that he conveys in the writing with such a grand sweep and such apparent effortlessness.

Close-up examination of selected parts prove his worth even more. In the second volume, for instance, there is a short section on the City Beautiful Movement, the vogue, "around 1900, to introduce an urban-reform movement that would

make cities more healthy, moral, and equitable. Mayor [William] Howland of Toronto...was one pace-setter; another was J. S. Wordsworth, the first leader of the CCF...." One of the noblest results was the importing of the famous American landscape architect Frederick Law Olmstead (designer of New York's Central Park) to create Mount Royal Park in Montreal. Checking Kalman against a brand-new paperback edition of the standard work, **The City Beautiful Movement** by William H. Wilson (Johns Hopkins University Press, US\$19.95) shows Kalman to be absolutely precise and cogent as he discusses the movement's little-studied Canadian offshoot.

SOME OTHER NEW BOOKS OF SPECIAL interest to *Rotunda* readers:

- Sissinghurst, the home in Kent shared by the English writers Vita Sackville-West and Harold Nicolson, is best known for its innovative formal gardens—perhaps the most famous such place in all of British gardening, thanks in part to Sackville-West's own writing on the subject. Sissinghurst, the house and grounds, has been under the care of the National Trust since the 1930s. **Sissinghurst, Portrait of a Garden** by Jane Brown, first published a few years ago, has now reappeared in paperback (Penguin, \$19.95). It certainly shows the beauty, and explains the mystique of Sackville-West's achievement. But how many Canadians who know of Sissinghurst's enduring allure also know that the Royal Botanical Garden in Hamilton, Ontario, exists at all—let alone that this is the largest such place in the world? (Yes, larger than the Royal Botanical Gardens at Kew, outside London.) Norman S. Track's photographs in his book **Canada's Royal Garden: Portraits and Reflections** (Penguin, \$35) are intended to help rectify this omission of memory. The garden's various experts contribute chapters on their individual specialties, but this is supposed to be a book with mass appeal, as witness

the choice of Robert Bateman to write the foreword.

- Two excellent photographic books on the impossibly beautiful British Columbian coast appear almost simultaneously. **Timeless Shore: Canada's West Coast Trail** by George Allen (Bayeau, \$29.95) deals with Pacific Rim National Park, a 75-kilometre stretch of the west coast of Vancouver Island, where the Emily Carr landscape runs right up to the lonely wreck-dotted beaches full of haunting rock formations twisted and carved by centuries of sea and wind. Russ Heinel's book **Where the Eagles Soar: Over British Columbia's Islands** (Raincoast, \$29.95 paper) deals with the Gulf and Queen Charlotte Islands as well as southern Vancouver Island and leaves a visual aftertaste that is similarly haunting. One image that will stay with me is of a former whaling station at Rose Harbour, a remote cove on Kunghit Island, southernmost of the Queen Charlottes. The old facility is still there, given new life in the past generation as a commune.

- There has long been a need, I believe, for a book such as **To the Arctic: An Introduction to the Far Northern World** (Wiley, \$34.95): one that would codify in a popular way all the recent research about the Far North in fields as diverse as climatology and archaeology. That this one is written by an American (Steven B. Young, director of the Center for Northern Studies at Wolcott, Vermont), rather than by a Canadian, a Russian, or a Scandinavian, is curious. He writes clearly, arranges his material in textbook order, and covers the field thoroughly.

- One of the more intrinsically interesting new books on the North is **Lost in the Taiga** by Vassili Peskov (Doubleday Canada, \$34.95). It bears the subtitle "One Russian Family's Fifty-Year Struggle for Survival and Religious Freedom in the Siberian Wilderness," which pretty much says it all. In the 1970s, it seems, geologists in what diplomats now call the FSU (Former Soviet Union) happened upon a band of

Old Believers, Christian fundamentalists who had retreated from the world after the Russian Revolution and taken up a series of evermore remote positions in some of the least-visited parts of Siberia. Slowly but surely the scientists got to know the family, who came out of their shell somewhat. The fascination of the book is in the *Robinson Crusoe* type of detail about what they ate and how they sheltered and clothed themselves—in short, how people far more anti-technological than, say, the Amish managed to establish themselves in so hostile and barren a climate.

• **The Way of the Earth: Encounters with Nature in Ancient and Contemporary Thought** (Distican, \$38.50) by T. C. McLuhan, author of *Touch the Earth* and other works on Native Americans, is dedicated to the memory of Marshall McLuhan, her father. While her writing is nothing like his own fireworks prose, she does show something of the late guru's breadth of reach in making connections across cultures and through time. This important and thoughtful book on how humans have changed the way they see themselves fitting into the natural order makes its points by detailed case studies of widely scattered communities: not only Native Americans but also others during certain periods in the history of Japan, Greece, Colombia, Australia, and sub-Sahara Africa. This is a far more important book than a brief notice such as this can do justice to.

• **The Wedding in Ancient Athens** by John H. Oakley and Rebecca H. Sinos (University of Wisconsin Press, US\$40) uses vase paintings as the primary source (and literature as a secondary one) to piece together and interpret matrimonial traditions in Hellenic society from the 6th to the 4th century BC. There are 130 photographic plates, many of them full-page. But all of them, alas, are in black-and-white.

DOUGLAS FETHERLING

Douglas Fetherling is book review editor of Rotunda magazine

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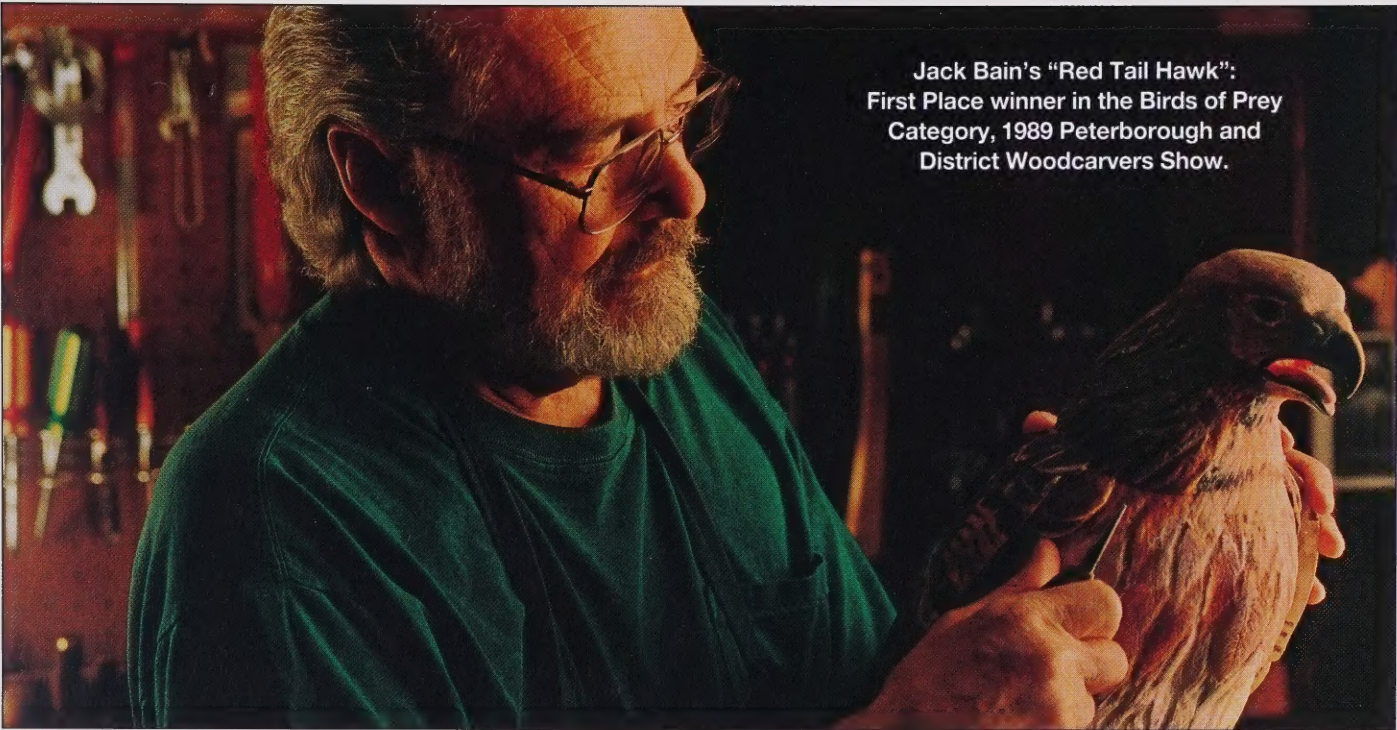
❖ LOOK AGAIN ❖



Of Queens and Emperors


THERE ARE ALL SORTS OF WONDERFUL THINGS DISPLAYED ON THE WHAT-NOT IN the Victorian parlour located in the south wing of the Samuel European Galleries. The piece of Staffordshire ceramics illustrated here portrays Queen Victoria and Emperor Napoleon III. Created sometime between 1855 and 1860 it likely commemorates the alliance between Britain and France against Russia during the Crimean War of 1854-56. When identifying the subjects it is safe to assume that a female bearing a crown in an English piece of this date is Queen Victoria, but how did ROM curators conclude that the male figure is Napoleon III? From his hat, of course. Only the emperor had sufficient status to wear his hat in the presence of the queen. ❖

PHOTOGRAPH BY BRIAN BOYLE

A photograph of Jack Bain, a man with a beard and glasses, wearing a green shirt. He is holding a highly detailed wood carving of a Red Tail Hawk. The background is a workshop with various tools hanging on the wall.

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